

Preservation Plan

for

THE CUMBERLAND NAIL AND IRON COMPANY OFFICE

**MAYOR AIKEN DRIVE
BRIDGETON, NJ 08302**

Prepared for the

**CITY OF BRIDGETON
181 EAST COMMERCE STREET
BRIDGETON, NEW JERSEY 08302**

Funded by a grant from the

**GARDEN STATE HISTORIC PRESERVATION TRUST FUND
administered by the
NEW JERSEY HISTORIC TRUST
and by the
CITY OF BRIDGETON**

Prepared by

**WATSON & HENRY ASSOCIATES
Bridgeton, New Jersey
Project 10-010**

FINAL COPY

JULY 2013

**Michael C. Henry, PE, AIA
NJ PE#25633 NJ RA#11115**

**Penelope S. Watson, AIA
NJ RA#10019**

TABLE OF CONTENTS

COVER

TABLE OF CONTENTS	Page i
PROJECT DIRECTORY	Page iv
PRECIS	Page vi
BACKGROUND AND HISTORICAL ANALYSIS	
• Introduction	Page 1
• Historic Designation	Page 1
• Historic Name	Page 1
• Legal Authority for Ownership and Stewardship	Page 1
• Location and Setting	Page 1
• Architectural Description	Page 2
• Significant Features	Page 3
• Architectural, Cultural and Historical Significance	Page 3
• Buildings and Arrangement	Page 3
• Previous Uses of Land and Previous Structures on Site	Page 4
• Historic Overview	Page 4
CHRONOLOGY OF CONSTRUCTION	
• Introduction	Page 19
• Methodology	Page 19
• First Build: Initial Construction, 1815	Page 19
• Second Build: North Extension, Second Quarter, Nineteenth Century	Page 20
• Third Build: North Wing, c. 1850s	Page 20
• Fourth Build: Twentieth Century Alterations	Page 21
ANALYSIS OF EXISTING CONDITIONS	
• Introduction	Page 24
• Methodology	Page 24
• Site	Page 25
• Climate Context	Page 26
• Foundations and Masonry	Page 27
• Framing	Page 28
• Roofing and Moisture Protection	Page 29
• Exterior Wood Cladding and Trim	Page 29
• Exterior Finishes	Page 30
• Windows, Doors and Shutters	Page 30
• Barrier-Free Accessibility	Page 32
• Interior Spaces	Page 32
• Building Systems	Page 33
RECOMMENDATIONS	
• Introduction	Page 36
• Preservation/Restoration/Rehabilitation Philosophy & Guidelines	Page 36
• Proposed Approach for the Cumberland Nail and Iron Company Office	Page 38
• Use & Allocation of Spaces, Including Barrier-Free Access	Page 39
• Technical Recommendations: Exterior	Page 40

• Technical Recommendations: Interior	Page 44
• Building Systems	Page 45
• Conceptual Costs	Page 46
• Maintenance	Page 47
BIBLIOGRAPHY	Page 50
ILLUSTRATIONS AND PHOTOGRAPHS	
• List of Illustrations and Photographs	Page 52
APPENDIX A	
• Secretary of the Interior’s <i>Standards for the Treatment of Historic Properties</i> (1995)	
APPENDIX B	
• Climate Data	
APPENDIX C	
• Lightning Protection Analysis	
APPENDIX D	
• Workshop Notes	
APPENDIX E	
• Conceptual Cost Study	
APPENDIX F	
• Room-by-Room Survey Forms	
APPENDIX G	
• <i>New Orleans Charter for the joint Preservation of Historic Structures and Artifacts</i>	
APPENDIX H	
• Reduced Format Floor Plans (Basement, First Floor, and Basement Reflected Ceiling Plans)	
APPENDIX J	
• Maintenance Checklist	

End of Table of Contents

PROJECT DIRECTORY

PROJECT

Preservation Plan for the Cumberland Nail and Iron Company Office
1 Mayor Aiken Drive
Bridgeton, New Jersey 08302

OWNER

City of Bridgeton
181 East Commerce Street
Bridgeton, New Jersey 08302
Phone (856)-455-3230
Fax (856)-451-5321

Albert Kelly
William Spence

Mayor
Council President

CLIENT

City of Bridgeton
181 East Commerce Street
Bridgeton, New Jersey 08302
Phone (856)-455-3230
Fax (856)-451-5321

Albert Kelly
Dale Goodreau
Kevin Rabago
Flavia Alaya

Mayor
Business Administrator
Special Assistant to the Mayor
Cultural Affairs Officer

FUNDING

The preparation of this *Preservation Plan* has been made possible by a grant from The Garden State Historic Preservation Trust Fund, administered by the New Jersey Historic Trust, and by Bridgeton Main Street Association

INVESTIGATING TEAM

Watson & Henry Associates
Preservation Architects and Engineers
12 North Pearl Street
Bridgeton, New Jersey 08302
Phone (856) 451-1779
Fax (856) 451-0471

Penelope S. Watson, AIA
Michael C. Henry, PE, AIA

Principal Architect
Principal Engineer/Architect

The statements and opinions contained herein are for the use and information of the City of Bridgeton, New Jersey. The opinions reflect the judgment of historic preservation and conservation professionals performing with the care and skill ordinarily used by other historic preservation and conservation professionals when dealing with existing structures at the same time and in the same or similar localities. Conclusions drawn in this report are based on those conditions and surfaces accessible to the unaided visual observation of the authors. No warranties or guarantees can be inferred from, or implied by, the statements or opinions contained in this report.

End of Project Directory

PRECIS

Four or five experienced NAIL MAKERS, on Rudd's patented principle, are wanted in the CUMBERLAND NAIL WORKS, thirty six miles from Philadelphia, to whom constant employment and liberal wages will be given....Apply to BENJ. & DAVID REEVES, No. 19, North Front-street, PHILADELPHIA...N.B. Workman from Eastern Factories will be preferred.

“Nail Makers Wanted,” *Boston Gazette*, 17 August 1818

Just three years after opening, the Cumberland Nail Works was thriving to the point of advertising as far away as Boston for skilled workmen. Benjamin and David Reeves, two well-capitalized brothers from Gloucester County, had come to Bridgeton in 1815 and bought fifty percent of the water rights from the damming of the Cohansey River, which had been accomplished by Ebenezer Seeley, James Lee, and Smith Bowen just four years earlier. The Reeves brothers constructed a cut nail factory on the west bank of the Cohansey, the first major industry in the small, rural county seat. Over the next eighty-five years, Cumberland Nail Works changed the fortunes of Bridgeton, playing a major role as the town developed into the largest and most prosperous New Jersey city south of Camden.

In many respects, the history of the Cumberland Nail Works, later incorporated as the Cumberland Nail and Iron Company, is the history of Bridgeton in the nineteenth century. It was reportedly the presence of Cumberland Nail Works that convinced the New Jersey Legislature to award a charter to the Cumberland Bank in 1816; Oberlin Smith, Bridgeton's nationally-known industrialist in the early twentieth century, founder of the Ferracute Machine Company, started his working life at Cumberland Nail and Iron. The hundreds of acres of undeveloped property north and west of the nail factory, through which the water power was supplied by means of the Raceway, was opened to public enjoyment from the early years of the Cumberland Nail Works' existence, and developed into a much used and appreciated *de facto* city park.

When Cumberland Nail and Iron Company, economically devastated by the advent of wire nails, faced a bankruptcy sale in 1899, the citizens of Bridgeton suddenly realized the civic asset they had come to take for granted could disappear. They rallied to the cause, and convinced the City of Bridgeton to purchase the property for a city park. Thus what was Bridgeton's chief industrial asset in the nineteenth century was transformed into one of its chief cultural and recreational assets in the twentieth and twenty-first centuries.

Through all this, the office building has played a pivotal role. The oldest section dates to 1815, one of the original buildings of the Cumberland Nail Works. It was expanded twice over the next half century as Cumberland Nail Works grew into Cumberland Nail and Iron Company, always fulfilling its function as the corporate heart of the expanding facility. When the property was transformed into Bridgeton City Park, the office served for a time as the headquarters of the Bridgeton Park Commission. Remodeled in the 1940s, it then took on a role as a meeting place for civic organizations, an art gallery, and eventually as a museum operated by the Bridgeton Antiquarian League and Historical Society. It remains today as one of two buildings surviving from the considerable complex that was the Cumberland Nail and Iron Company, and the only one in its original location.

The collection of the Bridgeton Antiquarian League was removed from the building about 2008, leaving the building vacant. A group of citizens became concerned about the future use and maintenance of the office, and undertook a campaign to study its history, condition, and potential for future utilization. It was for this group, working on behalf of the City of Bridgeton and the Bridgeton Main Street Association, that this *Preservation Plan for the Cumberland Nail and Iron Company Office* was prepared, with a Garden State Historic Preservation Trust Fund matching grant, administered by the New Jersey Historic Trust.

This Preservation Plan presents the strategy for restoration/rehabilitation and interpretation of the building within the framework of an organized analysis of the assets and needs of the building and the City of Bridgeton. The resultant findings and recommendations for the Cumberland Nail and Iron Company Office are organized

under four sections of this Preservation Plan: **Background and Historical Analysis, Chronological Development, Analysis of Existing Conditions, and Recommendations.**

The **Background and Historical Analysis** presents the background and historical context of the building. It includes an architectural description, a discussion of its significance and of its significant features. The section provides an overview of the history of the building and the people responsible for its construction, alteration, and maintenance over the years.

The section concludes that the office possesses:

- Historical significance as the corporate heart of the Cumberland Nail and Iron Company, Bridgeton’s major industry throughout the nineteenth century, and the business that propelled Bridgeton from being a small county seat to becoming an important South Jersey municipality;
- Cultural significance for its preservation by the City of Bridgeton at the time of the formation of the Bridgeton City Park, following the dissolution of the Cumberland Nail and Iron Company at the turn of the twentieth century;
- Cultural significance for its continued use throughout the twentieth century in its role as the meeting place of many civic organizations and home of the Bridgeton Antiquarian League’s museum.

The **Chronology of Construction** section summarizes the results of research of the documented changes to the structure and of field investigation of the changes. This section describes the original configuration of the office, and the alterations made to it over the course of the nineteenth and twentieth centuries.

The **Chronology of Construction** section traces the development of the Cumberland Nail and Iron Company Office from its initial construction to the present, and identifies four major builds:

- First Build: Initial construction, 1815;
- Second Build: North extension, mid nineteenth century;
- Third Build: North wing, before 1866;
- Fourth Build: Bridgeton City Park renovation, 1944.

The **Analysis of Existing Conditions** section summarizes the results of a survey-level assessment and analysis of conditions of the structure, including architectural features, accessible structural components, and systems.

The **Analysis of Existing Conditions** section reports that the condition of the site is considered to be:

- Good with respect to fire apparatus access to the building;
- Good with regard to fire exposure from adjacent properties;
- Good with respect accommodations for visitor parking;
- Poor with regard to site drainage of surface water;
- Good with respect to the availability of water and sewage service;
- Good with respect to barrier-free access to the first floor entrance.

The **Analysis of Existing Conditions** finds the conditions of the foundations and masonry are:

- Good with respect to the foundation walls from the interior of the basement;
- Good with respect to the cementitious parge on the exterior of the foundation;
- Historically inappropriate with respect to the concrete masonry unit and cementitious parge foundation;
- Fair with respect to the masonry safe foundation in the basement;
- Good with respect to the historic integrity of the Cumberland Nail and Iron Company stabilization at the safe foundation in the basement;
- Good with respect to the exterior masonry on the north façade fireplace chimney;
- Good with respect to the chimney on the east façade;
- Poor with respect to the structural functionality of the pilasters.

Based on material observations, the **Analysis of Existing Conditions** finds the condition of the wood framing to be:

- Fair to poor with respect to condition of first floor framing visible in the basement;
- Good with respect to the condition of the roof framing;
- Indeterminate with respect to the condition of the attic floor framing;
- Indeterminate but suspect with respect to the condition of the wall framing.

The **Analysis of Existing Conditions** section finds roofing and moisture protection to be in:

- Good with respect to condition of composition shingle roof and plywood sheathing;
- Historically inappropriate with respect to the composition shingle roofing and plywood sheathing;
- Historically inappropriate with respect to lack of gutters and rainwater conductors;
- Potentially damaging to the building with respect to lack of gutters and rainwater conductors.

The **Analysis of Existing Conditions** section finds that, overall, wood cladding and trim is considered to be in:

- Fair to poor condition with respect to the weatherboards;
- Good condition with respect to the cornice crown molding where extant;
- Historically inappropriate condition with respect to the box cornice where replacing the cornice crown molding;
- Generally good condition with respect to window and door casings;
- Historically inappropriate with respect to the missing window hoods.

The **Analysis of Existing Conditions** finds that exterior finishes are considered to be in:

- Generally good condition with respect to coatings on wood cladding and trim;
- Fair condition on doors and shutters;
- Poor condition on windows;
- Indeterminate with respect to the presence of lead.

The **Analysis of Existing Conditions** summarizes the conditions of the windows as:

- Good with respect to historical integrity;
- Fair to poor with respect to general condition of the six-over-six sash and casings on the south and center sections;
- Fair to poor with respect to general condition of the six-over-six sash and casings on the north section;
- Poor with respect to operability of all sash;
- Good with respect to existence of historic hardware;
- Fair with respect to condition of historic hardware.

The conditions of the exterior doors are summarized as:

- Good with respect to historic integrity of doors;
- Fair with respect to condition of exterior doors;
- Good with respect to historic integrity of hardware on west door;
- Indeterminate with respect to historic integrity of hardware on east door;
- Good with respect to operability of west door;
- Non-existent with respect to operability of east door.

The conditions of the shutters are summarized as:

- Good with respect to historic integrity of shutters;
- Fair to poor with respect to condition of shutters;
- Fair with respect to historic integrity of hardware on shutters;
- Fair with respect to condition of hardware on shutters;
- Poor with respect to operability of hardware on shutters;
- Inappropriate and potentially damaging with respect to installation of shutters by screwing to building.

The **Analysis of Existing Conditions** finds the condition of the Cumberland Nail and Iron Company Office with regard to meeting ADAAG requirements is considered:

- Adequate with respect to the path of travel from the public sidewalk to the entrance on the west side;
- Non-complying with respect to the height of the sill and threshold at the west entrance;

- Adequate with respect to circulation throughout the exhibit space;
- Adequate with respect to the entrance width to the restroom;
- Non-complying with respect to the interior of the restroom.

The **Analysis of Existing Conditions** section finds the interior to be:

- Good with respect to condition of the floors;
- Historically inappropriate with respect to the polyurethane coating;
- Fair to good with respect to the condition of the plaster walls and ceiling;
- Good with respect to the condition of the gypsum wallboard ceiling;
- Historically inappropriate with respect to the gypsum wallboard ceiling;
- Good with respect to the coatings on the plaster, gypsum wallboard and wood trim;
- Indeterminate with respect to the presence of lead in paint;
- Good with respect to the condition of the brick fireplace and federal-style mantel;
- Fair with respect to the condition of the finishes in the restroom;
- Good with respect to the integrity of the historic fabric in the attic;
- Poor with respect to the operability of the clock;
- Historically inappropriate with respect to the finish on the interior clock case;
- Apparently inoperable with respect to door allowing access to the exterior clock face.

In regard to building systems, the **Analysis of Existing Conditions** finds the mechanical system to be in:

- Adequate condition regarding the age and model of the furnace;
- Poor condition regarding the apparent lack of maintenance on the furnace;
- Good condition regarding the supply air distribution ducts;
- Poor condition regarding the destruction of the insulation on the attic ducts;
- Inappropriate condition regarding the location of the vertical supply duct in the restroom;
- Inappropriate condition regarding the use of wood joists in the return air lines;
- Good condition regarding the hot water supply;
- Indeterminate condition regarding the municipal water supply;
- Indeterminate condition regarding the municipal sewer service;

the plumbing system to be in:

- Fair condition with respect to the restroom;
- Poor condition with regard to the corrosion of the water and sewer pipes where they enter the west basement wall;
- Fair condition with regard to the lack of support for the sewer piping in the basement;
- Historically inappropriate with respect to the location of the restroom;

and the electrical system to be:

- Adequate in regard to amperage for the present requirements of the non-air-conditioned building;
- Poor in regard to the lack of cover and inconvenient location of the electrical panel box;
- Poor in regard to the non-metallic sheathed wiring;
- Historically inappropriate with respect to the lighting, both downlights and chandeliers.

The **Analysis of Existing Conditions** finds the condition of the fire detection and fire protection systems to be:

- Good with respect to proximity to fire department services;
- Inadequate with respect to separation of potential combustibles and ignition sources from the historic building and collections, particularly with respect to basement storage;
- Non-existent with respect to fire detection;
- Non-existent with respect to fire suppression;
- Indeterminate with respect to fire department response time.

The **Recommendations** section finds that because of the Cumberland Nail and Iron Company Office's historic significance, work performed on the building should comply with the Secretary of the Interior's *Standards for the Treatment for Historic Properties* (1995) (Appendix A). Recommendations for application of the *Standards*

for the Cumberland Nail and Iron Company are that the *Standards for Restoration* should be applied to the interior and exterior.

If artifacts are to be housed in the office, measures to conserve the existing structure and collections should be in conformance with the *New Orleans Charter for the Joint Preservation of Historic Structures and Artifacts* (Appendix G), adopted by the American Institute of Historic and Artistic Works (AIC) and the Association for Preservation Technology International (APTI).

The determination of the Period of Significance is the pivotal decision in planning for the preservation and restoration of a historic site or structure. The Period of Significance may be a specific date or a range of dates. The **Recommendations** section finds that when the history of the Cumberland Nail and Iron Company Office is viewed in the whole, the construction of the oldest section in 1815, at the inception of the Reeves brothers' nail manufactory undertaking; its vital position as the management core of operations for almost eighty-five years; its survival after the city's acquisition of the property; and its continuous community use for over a century as part of the Bridgeton City Park, bestow on it an ongoing significance. This significance stretches from its initial construction up to the present time, over a continuum of almost two centuries. The Period of Significance for the Cumberland Nail and Iron Company Office therefore encompasses the nearly two-hundred years from 1815 until the present.

The Period of Interpretation, the time frame to which the Cumberland Nail and Iron Company Office should be preserved and interpreted, should fall within the Period of Significance. The **Recommendations** section finds that the building evolved through its use by the Cumberland Nail and Iron Company and the City of Bridgeton until 1944, when the city removed interior and exterior fabric dating from the Cumberland Nail period (including the safe, room partitions and two chimneys) and constructed the extant fireplace and chimney. No substantial changes have been made since, with the exception of the addition of exhibit cases and a small restroom installed by the Bridgeton Antiquarian League in the 1970s. Therefore, the recommended Period of Interpretation is:

- 1944, following the major alterations undertaken by the City of Bridgeton.

At a workshop held on 12 May 2011, it was determined that the City of Bridgeton and other stakeholders would like to use the Cumberland Nail and Iron Company office in the following manner:

- To open and interpret it to the public to tell the story of:
 - The history of the Cumberland Nail and Iron Company and Bridgeton's industrial heritage;
 - The history of the City of Bridgeton's acquisition of the Cumberland Nail and Iron Company's extensive property holdings in 1903;
 - The subsequent history of the Bridgeton City Park;
- As a hub for a Bridgeton history trail;
- As a gateway for both the park and for a wider exploration of Bridgeton;
- As a secondary function, use it to hold public meetings, such as for the Bridgeton Historic District Commission.

Two potential paths forward were identified:

- The city could remain as the sole steward and operator of the interpreted building;
- The city could partner with a strong non-profit that would assist in caring for the building and collection, and would shoulder the responsibility for operating it and keeping it open for interpretation.

Several potential non-profit partners were discussed. Chief among them were:

- A reconstituted Bridgeton Antiquarian League;
- Bridgeton Main Street;
- Cumberland County Historical Society;
- Center for Historic American Building Arts (CHABA), a new non-profit in Bridgeton with a mission to make Bridgeton a preservation study area and to provide training in preservation skills;

- Development of a Bridgeton Park Commission based on the Fairmount Park Commission in Philadelphia, a separate autonomous entity with the city but not of it, which could incur debt and create a revenue stream.

Consistent with the Guiding Vision developed at the Workshop, a proposed reallocation of use and space has been developed:

- The main first floor space will be restored, including:
 - Elimination of the restroom;
 - Reopening of the east door that originally provided access to the factory operation;
 - Restoration of the clock;
 - Removal as deemed appropriate of cabinets and exhibit cases.
- The basement will be repurposed as needed for mechanical use, or storage of non-sensitive artifacts.

The Recommendations section finds that convenient permanent barrier-free access could be provided by construction of:

- A dedicated barrier-free parking space in parking owned by the city and leased to the Salvation Army;
- A barrier-free path of travel with a stabilized surface from the parking space to the front (west) door.

The **Recommendations** section finds that:

- The site should be gently regraded so that a slight swale, running north-south, separates the building from the sidewalk;
- Foundation drainage should be installed across the west elevation, and discharge to daylight;
- The ground immediately around the house should be regraded to provide positive slope away from the building;
- A brick water splash should be constructed at the building perimeter;
- The four sycamore trees in the immediate vicinity of the building were planted by the Cumberland Nail and Iron Company, are significant features, and should be surveyed and cared for by a certified arborist;
- The foundation plantings of yews are not historically appropriate for the 1944 Period of Interpretation.

Regarding the masonry and chimneys, the **Recommendations** section finds that:

- The concrete masonry unit foundation with cementitious parge requires no work at present;
- The concrete masonry pilasters in the cellar need to be keyed into the wall either by reconstruction or other means;
- The masonry of the chimney at the north end should be cleaned of vegetative growth;
- The fireplace should not be used, as the risk of fire damage to the historic building outweighs the benefit of using the fireplace, and the chimney should be capped to prohibit both the entrance of moisture and the loss of heat;
- When it becomes necessary to repoint the chimneys, the mortar mix should be formulated to match the existing historic mortars in color, texture and detailing;
- When the furnace is replaced with a gas-burning furnace, the chimney on the east wall should be removed.

Regarding the framing, the **Recommendations** section finds that:

- The insect damage in the first floor framing, indicated by the presence of powderpost beetle holes in the post in the southwest corner, should be examined by a pest and termite expert to determine if the damage is from an active or past infestation. If active, extermination measures should be undertaken;
- The inadequate plywood sistering on the first floor joists should be removed and adequate, engineered sisters or steel reinforcement installed. Other deteriorated members, such as the north header at the fireplace and the two sets of north-south double joists between the chimney on the north wall of the north section and the historic safe base should be reinforced according to an engineered design.
- All structural interventions should be designed by an engineer with experience in the repair and reinforcement of historic buildings;

- It is of utmost importance that the original framing members be preserved and reinforced, and not replaced.

Regarding the roof and moisture protection, the **Recommendations** section finds that:

- When the useful life of the existing composition shingle roof reaches its end, it should be replaced with historically-accurate wood shingles
- Gutters and rainwater conductors should be added to extend the life of the building's historic fabric.

Regarding the exterior cladding and trim, the **Recommendations** section finds that:

- Damaged cladding should be removed from the building and restored under shop conditions;
- Molding with the profile of the historic crown molding should be reproduced, and installed to replace the box cornice;
- Window hoods should be repaired as required and reinstalled; addition hoods should be fabricated to replace missing hoods;

The **Recommendations** section finds that, regarding exterior finishes:

- The weatherboards do not need to be painted at this time;
- Before the building is painted again, the paint should be investigated by a historic paint analyst to determine the correct historic colors;
- The doors and shutters should be repainted in the near future to protect the historic fabric.

The **Recommendations** section finds that, regarding the windows, doors and shutters:

- A campaign of window restoration should be undertaken, with the windows removed from the building and restored in controlled shop conditions by a contractor experienced in working with historic windows;
- Windows should be made operable, should not be painted shut, and where appropriate should have the hanging system restored;
- If collections are reintroduced into the building, the windows should be fitted with bronze weatherstripping to seal the openings from air and pollutant infiltration;
- Exterior wood storm windows with laminated glass or interior spring-fit storm windows should be installed;
- When the restroom is removed, the exterior door on the east elevation should be restored and made operable again;
- Both doors should be fitted with weatherstripping to protect the interior and the collections from pollution;
- The shutters should be removed from the building, and repaired and painted under shop conditions;
- Shutter hardware should be removed and rehabilitated; replacements for missing hardware should be fabricated, based on the surviving historic hardware;
- Shutters should be rehung using appropriate original or reproduction shutter hanging hardware. Shutters should not be screwed to the building, as they currently are;
- If the shutters are hung as they were originally, and interior storm windows are installed, the shutters could be closed for security, as they originally were meant to be, when the building is closed.

The **Recommendations** section finds that, on the interior:

- The restroom should be removed and the door on the east side, originally the door that communicated with the main factory building along the Cohansey River, should be reopened (and the steps rebuilt);
- The cabinets and platform (in the northeast corner) appear to post date the Period of Interpretation, and can be removed without jeopardizing historic fabric; it would also be possible to retain and use them, if desired;
- The double faced clock, should be restored to working order, preserving as much of the historic fabric as possible;
- Woodwork should be treated with care and respect. If it becomes necessary to remove layers of paint, it should be done by chemical means and not by sanding;

- On the floors, when the finish becomes worn, care should be taken in refinishing. Existing finishes should be removed by chemical means and by hand scraping, and, with care, hand sanding. Floors should not be sanded with mechanical sanders, as this destroys the historic surface, leaving the floors looking inappropriately new;
- Historic plaster should be preserved. Ideally, the ceiling of the first and second builds should have the gypsum board removed and be replastered;
- Existing interior paint is in good condition. When it is time to paint the interior woodwork, a historic paint analyst should be retained to research colors at the Period of Interpretation.

Regarding building systems, the **Recommendations** section proposes:

- Construction of a fire-resistant mechanical room enclosure in the basement for the HVAC equipment;
- Construction of combustion air venting for the mechanical room;
- High efficiency warm air furnace, gas-fired, if natural gas service is available or oil fired if natural gas is not available;
- High-efficiency air conditioning evaporator coil for the furnace, complete with condensate pump. High-efficiency air conditioning condenser;
- Relined chimney and new flue pipe for an oil-fired furnace. Sidewall venting is specifically not recommended for this building;
- Insulated sheet metal supply air ductwork serving floor registers;
- Insulated sheet metal return air ducts from floor grilles;
- New fresh air intake with motorized damper for full-occupancy events;
- High efficiency dehumidifier for first floor relative humidity control, UltraAire70H by ThermaStor, LLC, with sheet metal supply and return ductwork separate from the furnace;
- High efficiency dehumidifier for basement relative humidity control, UltraAire70H by ThermaStor, LLC;
- Programmable digital humidistat for the dehumidifier control and a 7 day programmable digital thermostat for the heating, air conditioning and fresh air damper control for the first floor system.

The late-twentieth-century restroom should be decommissioned in its entirety, and the piping and fixtures removed.

The electrical system should be replaced in its entirety, and the replacement system should include new:

- Underground single phase service;
- 200 Ampere, single phase main disconnect and circuit breaker panel in the basement mechanical room;
- Grounding;
- Three-wire, grounded branch circuit wiring in EMT conduit or flexible metallic cable to lighting and convenience receptacles;
- Interior lighting in period correct fixtures on the first floor and new service lighting in the basement;
- Exterior lighting in period correct fixtures;
- Emergency lighting in the first floor and basement;
- Motion-activated security lighting for the exterior.

The building should be equipped with new fire detection and protection systems consisting of:

- Smoke detection in the first story and basement;
- Thermal detection in the attic and basement mechanical room;
- Limited area automatic fire protection sprinkler system, freeze-protected, for the entire building;
- Fire alarm control panel, centrally-monitored via hardwired and wireless communications.

The building should be equipped with new security and intrusion detection system consisting of:

- Contacts on windows and doors of first floor and basement;
- Glass-break detection in first floor;
- Power-loss detection and communications loss detection;
- Security alarm control panel, centrally-monitored via hardwired and wireless communications.

The building should be equipped with new telecommunications consisting of:

- Underground telecommunication service line and secure entry to building.
- Wireless back-up communications service for alarm systems.

The **Recommendations** section presents conceptual cost studies for construction of improvements at the Cumberland Nail and Iron Company Office (Appendix E).

Finally, the **Recommendations** section presents an overview of a long-term maintenance strategy for preserving the building and the investment represented by the restoration. A sample maintenance checklist that can be used by the city for monthly, semi-annual and annual activities is included in Appendix J.

ACKNOWLEDGEMENTS

Watson & Henry Associates would like to thank Flavia Alaya, of Bridgeton's Historic District Commission, and Kevin Rabago, of the City of Bridgeton, for their enthusiasm for the project, and their active participation with us. Throughout the project, the objective of the project team has been to arrive at a plan for stewardship and interpretation for the Cumberland Nail and Iron Company Office that addresses its needs for preservation and continuing use. We trust we have satisfied that goal.

End of Precis

BACKGROUND AND HISTORICAL ANALYSIS

INTRODUCTION

The **Background and Historical Analysis** of this *Preservation Plan* presents the physical and historical context of the Cumberland Nail and Iron Company Office, as well as basic descriptions of the historic building and the immediate site.

This section summarizes:

- Formal recognition of the historical integrity and significance of the resource;
- Legal ownership of the property;
- The location and setting;
- The architectural, cultural, and historical significance of the resource;
- A description of the historic building and immediate site;
- The history of the historic building and property.

HISTORIC DESIGNATION

The Cumberland Nail and Iron Company Office has been awarded a Certification of Eligibility as a contributing building in the Bridgeton Historic District. The Bridgeton Historic District was listed in the New Jersey Register of Historic Places on 22 February 1982 and in the National Register of Historic Places on 29 October 1982.

HISTORIC NAME

The first recorded mention of the industrial complex on the west bank of the Cohansey, three years after its construction, referred to it as the Cumberland Nail Works.¹ In 1856 the business was incorporated under the name the Cumberland Nail and Iron Company. After that, the site was usually referred to as the Cumberland Nail and Iron Works. All known period references to the building that is the subject of this report refer to it simply as the Office.

LEGAL AUTHORITY FOR OWNERSHIP AND STEWARDSHIP

The owner of the Bridgeton City Park is the City of Bridgeton. The city purchased the property on 06 January 1903 for \$35,000, from Frank M. Riley, Trustee for the Cumberland National Bank.² The sale was approved by Bridgeton City Council ordinance, with the first two readings passing on 23 September 1902, and the third reading passing on 14 October 1902.

LOCATION AND SETTING

The Cumberland Nail and Iron Company Office is located on the east side of Mayor Aitken Drive in the Bridgeton City Park, Bridgeton, Cumberland County, New Jersey, Block 278, Lot 1 (figures 1, 2 and 3). The site is on the west bank of the Cohansey River, one block west of Bridgeton's four-square-block downtown commercial district that lies east of the river. The site is approximately two blocks west of State Route 77, which runs north-south and leads to Exit 2 of the New Jersey Turnpike, about thirty miles north; it is two blocks north of State Route 49, which runs east-west. Bridgeton is approximately thirty miles southeast of the Delaware Memorial Bridge and Interstate 95 by way of Route 49.

Bridgeton was founded in the seventeenth century, became the seat of newly-formed Cumberland County in 1748, and developed into a manufacturing center and the largest city in New Jersey south of Camden in the nineteenth century. The city retains much of its nineteenth-century built fabric. The vicinity of the Cumberland Nail and Iron Company Office was the heart of Bridgeton's industrial district in the nineteenth century. Since the turn of the twentieth century, it has been a city park, and the office is one of only two buildings remaining from the industrial complex.

ARCHITECTURAL DESCRIPTION

The vernacular Gothic revival, one-story frame Cumberland Nail and Iron Company Office is T-shaped in plan, with the long side of the leg of the T facing west onto Mayor Aitken Drive (figures 39 through 43, Appendix H). The south section of the building (the First and Second Builds), the four-bay-by-one-bay T leg, has a gable roof with the ridge parallel to the street; the roof dies into the higher gable roof of the north section (the Third Build), the two-bay-by-one-bay T bar, which has its ridge perpendicular to the street. The roof is clad with composition shingles, and the walls, with wood weatherboards. The weatherboards on the south section are beaded on the lower edge, and the weatherboards on the north section are plain. The foundation on both sections is concrete masonry units parged with concrete.

An exterior chimney of brick laid in running bond rises from grade on the north façade between the two windows. The chimney tapers in on its east and west sides, with the taper stopping at the point where the chimney pierces the eave of the façade. The chimney is tapered in again on all four sides at the top four courses. On the west facade, an exterior brick chimney laid in running bond rises from grade and pierces the eave between the two southernmost windows.

On the street (west) façade, the south end of the south section has a six panel entrance door flanked by six-over-six fixed/sliding windows; about three quarters of the way from the south end, the weatherboards are interrupted by a vertical member that appears to be a former corner board; a third window is centered in the northern quarter. Between the southernmost window and the end of building, the face of a clock is set into the wall under the eaves. In the end of the north section, which projects toward the street, a six-over-six window, both wider and taller than those on the south section (as are all the windows in the north section) is surmounted by a four-over-four window with pointed head set in the gable.

The south façade of the south section has a six-over-six fixed/sliding window surmounted by a pointed four-over-four window in the gable. There is no fenestration on the south façades of either the east or west extensions of the north section.

The east façade is similar to the west façade, with three exceptions. At the south end, a six-panel door is located toward the south, with two windows toward the north. The four-over-four window in the gable of the north section does not have a pointed head. A modern bulkhead cellar door is located in the approximate center of the north section.

The north façade has two six-over-six fixed/sliding windows flanking the previously-described chimney.

All the windows except the gable windows are fitted with wood shutters screwed to the weatherboards. The shutters on the south section have three panels, and the shutters on the north section have two panels. The northernmost window on the east façade of the south section has one shutter missing.

The interior is one large open space, with the exception of a restroom that has been partitioned off the southeast corner. For purposes of analysis and description, the room has been divided into the three periods of construction, with room 101 being to the south, room 102 in the center, and room 103 forming the bar of the T.

Rooms 101 and 102 have plaster walls and a new gypsum drywall ceiling, and room 103 has a plaster ceiling and walls. The floors, which reflect the three building campaigns in their patterns, have been sanded and coated with polyurethane. Various built in shelves and display cases line the walls.

A brick fireplace with a wood federal mantel and surround is centered on the north wall. In the southwest corner, a hatch in the ceiling provides access to the attic. On the west wall in the southwest corner, the double-faced clock has a door that provides access to the workings, for winding and repair.

SIGNIFICANT FEATURES

The structure's most significant exterior feature is the face of the clock set in the east wall, with the maker's name, John Whitehead, intact. Other significant exterior features include the east and west doors, the windows and shutters, door and shutter hardware, and the wood cladding and trim. The window hoods, now disassembled and stored in the basement, are significant.

Significant interior features include:

- Floorboard pattern showing sequence of construction and location of built-in safe;
- Foundation for safe in basement, with stabilizing iron strapping dating from the Cumberland Nail and Iron Company tenure;
- Plaster walls and ceiling;
- Interior elements of the John Whitehead clock;
- Wood trim.

ARCHITECTURAL, CULTURAL AND HISTORICAL SIGNIFICANCE

The Cumberland Nail and Iron Company Office is primarily significant as one of two buildings surviving from Bridgeton's first major industry.³

The building has:

- Historical significance as the corporate heart of the Cumberland Nail and Iron Company, Bridgeton's major industry throughout the nineteenth century, and the business that propelled Bridgeton from being a small county seat to becoming an important South Jersey municipality;
- Cultural significance for its preservation by the City of Bridgeton at the time of the formation of the Bridgeton City Park, following the dissolution of the Cumberland Nail and Iron Company at the turn of the twentieth century;
- Cultural significance for its continued use throughout the twentieth century in its role as the meeting place of many civic organizations and home of the Bridgeton Antiquarian League's museum.

BUILDINGS AND ARRANGEMENT

The Cumberland Nail and Iron Company Office is one of two buildings surviving from the nineteenth-century industrial complex. The second structure, the pattern shop, is located about six hundred feet north, on the opposite side of Mayor Aitken Drive. Two other structures are currently located adjacent to the office. The Dame Howell's School, a small one-room schoolhouse, was moved from Pine Street in Bridgeton to a location north of the office in 1975 when it was threatened by an urban-renewal project. A late-twentieth-century wood gazebo is located northeast of the office. The spike machine from the Cumberland Nail and Iron Company was preserved as a relic when the plant was demolished, and is located between the office and the river; the machine has been protected by a sheltering roof in the past, but currently has no protection.

PREVIOUS USES OF LAND AND PREVIOUS STRUCTURES ON SITE

Archaeological analysis of the area concluded that the low-lying land adjacent to and north of the Cohansey River is not likely to contain prehistoric remains because “much of what is now the Bridgeton City Park was originally low swampland. This obviously would have had a marked effect upon aboriginal settlement within the...area by restricting those zones suitable for habitation.”⁴

There is no documentary evidence of the existence of structures on the site before the property was purchased by Benjamin and David Reeves in 1815. Smith Bowen sold the property to the Reeves brothers within about a year of the completion of the water power project; there is no record of his having constructed a mill on the property in that brief period.

The oldest part of the office (the First Build) dates from the original construction of the nail works in 1815. Since fire destroyed the main factory in 1824, the exact configuration of buildings on the site before that date is not definite, but it was probably similar to the site after it was rebuilt, and as it appears on the Hexamer General Survey map of 1866 (figure 6).

According to that map, a cartway entering the site from Commerce Street was located approximately where Mayor Aitken Drive is now, and the office had a similar relation to it (figure 7). The office was in the center of the complex of buildings. The major works, the foundry, nail mill and nail storehouse were arrayed along the west bank of the Cohansey, east of the office. To the south, west and north of the office were eight small buildings housing support functions, including a lumber storehouse, an empty keg storehouse, a fire engine shed, a carpenter shop, a storehouse for old lumber, a stave storehouse, another empty keg storehouse, and a cooper shop. All the support buildings were frame with wood shingle roofs except the cooper shop, which was brick with a wood shingle roof. The foundry and nail mills were stone, the mills with slate roofs and the foundry with a tile roof. North of the mills, but attached, was a frame machine shop with a shingle roof and a brick smith shop with a slate roof. Visitors entering the site by means of the gated cartway would have encountered the office before reaching the mills and foundry.

On the east bank of the Cohansey in 1866 was the 1847 rolling mill, frame with a shingle roof, and the 1853 gas pipe works, brick with a slate roof. A second entrance to the site was located to the east, on an axis with the courtyard separating the rolling mill and gas pipe works. There, a 15' by 16' brick office was located right at the entrance, between the vehicular gate and the pedestrian gate. This entrance and office were located at the present intersection of Washington and Cohansey Streets.

Circulation within the site was provided by a bridge over the Cohansey, located where the Washington Street bridge now stands.

HISTORICAL OVERVIEW

CUMBERLAND NAIL WORKS

When Ebenezer Seeley (1760-1840),⁵ James Lee (?-?), and Smith Bowen (1763-?) initiated a joint venture to harness the water power of the upper reaches of the Cohansey River watershed, between 1810 and 1814, they were continuing an industrial movement in Bridgeton that began about 1686 when Richard Hancock erected a dam on Mill Creek to run a saw mill. Hancock's venture was followed by a dam and gristmill erected by Ephraim Seeley in the Indian Fields area (now East Lake) in 1700. Starting about 1809, Jeremiah Buck constructed a new, larger dam in the vicinity and four mills to utilize the water power: a sawmill, gristmill, cotton mill and woolen mill.⁶

The dam of Seeley, Lee and Bowen was located over a mile north of the center of Bridgeton, and was known as Tumbling Dam, with the pond behind it called Tumbling Dam Lake (now Sunset Lake). Local legend relates that the one-and-a-half-mile-long raceway from the dam to the factory site was constructed in one year beginning in 1811 by a father and two sons, working for \$.50 a day apiece, which would put the total cost for the raceway at less than \$500.⁷

Seeley and Lee owned the land on the east side of the Cohansey, where they planned to build a paper mill; and Bowen, on the west.⁸ The plan for the paper mill was abandoned when the price of paper plummeted following the end of the War of 1812, when paper could once again be imported from England, and Seeley and Lee built a sawmill instead.

About 1814 or 1815, Smith Bowen sold his property and his fifty percent share of the water power to brothers Benjamin and David Reeves. Benjamin (1779-1844) and David (1793-1871) (figure 18) were the eldest and youngest of the five children of Thomas and Keziah Reeves, a prosperous farming family of Deptford Township, Gloucester County, New Jersey. In his twenties, Benjamin was a merchant in Philadelphia. In 1811, he became involved in the ownership of ferries running from the foot of Market Street in Philadelphia, along with his cousin Clement Reeves.⁹ He apparently also owned a hotel in Camden; when the Cumberland Bank was founded in 1816, one of the locations for bank stock subscriptions was Benjamin Reeves' Hotel in Camden.¹⁰ He was thirty-six, and his brother David just twenty-two, when they undertook the establishment of a cut nail manufactory on the property along the Cohansey.¹¹

The source of their capital has not been determined, but it probably came from their family, or was made available to them through family connections. Clement and Benjamin's great-grandfather, John Reeves, secured in 1704 the exclusive right to operate a ferry between Burlington and Philadelphia. He became one of the wealthiest men of his generation in the region, and his son Thomas, Benjamin's father, was known as a particularly well-to-do farmer and land owner in Gloucester County.¹²

The venture seems to have been well-funded and successful from the beginning. Within ten years, it employed forty to fifty people, and was valued at more than \$10,000. Cut nails were a relatively new invention, and the Reeves' operation began at a point in time that allowed them to benefit from the rapidly growing demand.

In the eighteenth century, wrought nails were hand-formed from nail-rods, split from rolled metal plates manufactured in rolling mills. Each nail had to be drawn to a point, and the head formed by a hammer. The hammer blows to the head left a distinctive mark that resulted in the product being known as "rose-head" nails. Wrought nails remain malleable, and can be clinched without damage to the nail.

About 1790, the first machine-made cut nails were developed. The nail shanks were cut from rolled plates, with the plate being reversed between blows to result in a taper. The nails were tapered on two sides where cut from the plate, but the other two sides were parallel, the thickness of the plate. In the beginning, the heads were still formed by hand, by hammer blows.

Of the cut-nail industry at that period, it has been said "The development of nail technology at the turn of the nineteenth century was so rapid that it can easily be compared to the rise of calculators and computers in the 1960s and 1970s." Two actions by the new federal government were behind the technology growth. Congress imposed a duty on imported nails in 1789 to encourage independence from foreign sources and increase domestic production, and, in 1790, the first US Patent Act was passed, providing federal protection for new inventions.¹³

Research into the development of cut nail manufacturing technology has been stymied by the 1836 fire in the US Patent Office that destroyed most specifications and drawings for patents filed before that date, but it appears that the earliest machine that both cut and headed nails was patented by Jacob Perkins in 1795, and was operating in Amesbury, Massachusetts even before that. In 1807, Jesse Reed, of Bridgewater, Massachusetts, patented a machine that incorporated the most important developments in technology over the intervening decade, and became the standard for the next thirty years.¹⁴

Apparently from the beginning, the Cumberland Nail Works used equipment that formed machine-made heads. Lucius Q. C. Elmer, in 1869, wrote:

The writer remembers to have seen, in the year 1805, the first machine for cutting and heading nails at one operation ever invented. It was on Crosswicks Creek, in Burlington County, and was comparatively very complicated. The Patent having been obtained by the Messrs. Reeves, was soon very much simplified.

No evidence has been found that either of the Reeves brothers received patents for improvements to nail-making machinery. Only two patents for nail technology have been identified with Bridgeton. One was issued to Reneer Dare (1797-1867) of Bridgeton, in 1838, for a “Machine for Heading Spikes and Nails.”¹⁵ The second, for “Gaging and Heading Movement for Spike Machine,” was issued to Purnell Jefferson (1815-1895), also of Bridgeton, in 1851.¹⁶

When the factory opened, nails sold for ten to fifteen cents per pound. The quality of the product secured the Cumberland Nail Works a substantial share of the cut-nail market throughout the eastern states, which it continued to hold until the last decade of the century.

By 1818, the Cumberland Nail Works was advertising for nail-makers in the Boston area:

Four or five experienced NAIL MAKERS, on Rudd’s patented principle, are wanted in the CUMBERLAND NAIL WORKS, thirty six miles from Philadelphia, to whom constant employment and liberal wages will be given...Apply to BENJ. & DAVID REEVES, No. 19, North Front-street, PHILADELPHIA...N.B. Workman from Eastern Factories will be preferred.¹⁷

The nail mill suffered a devastating fire on Thursday morning, 05 February 1824. The main building and all its contents were destroyed, and forty to fifty men put out of work. The loss to the Reeves brothers was estimated at \$10,000. The fire was widely reported, with brief accounts appearing in newspapers up and down the coast, including Trenton; Baltimore, Maryland; Middletown, Connecticut; and Charleston, South Carolina.¹⁸ The factory was immediately rebuilt, bigger than before (figures 23 and 24).

In 1826, Joseph Whitaker, Jr. (1789-1870), who manufactured cut nails in Philadelphia with his brother James from 1809 until 1820, and ran the leased Delaware Iron Works near Wilmington and the Gibraltar Forge at Reading after that, joined the Reeves brothers at their Bridgeton factory. The next year, the Reeves brothers and Whitaker purchased the Phoenix Iron Works at Phoenixville, west of Philadelphia. This enterprise had been founded in 1793, but did not become truly successful until taken over by the Reeves.¹⁹ In 1827, Reeves & Whitaker, a partnership with the Reeves brothers, Joseph Whitaker, Joseph’s brother James, and Francis Leaming, was formed.^{20,21}

REEVES, BUCK & CO.

Reeves & Whitaker was dissolved 1847; Benjamin had died by then, and Joseph Whitaker withdrew and embarked on building a steam sawmill, operated as David & Whitaker. David Reeves then formed a partnership with Robert Shute Buck (1802-1877) (figure 20) and Robert C. Nichols (1814-1900) (figure 21); this partnership was known as Reeves, Buck & Co. (figures 24 and 25).

Robert S. Buck was the son of Bridgeton builder and entrepreneur Jeremiah Buck and his wife Sarah Holmes Buck. When Robert was seventeen, Jeremiah experienced bankruptcy as a result of the recession following the War of 1812; thereafter, he was the innkeeper at the major hostelry in Bridgeton, on the northwest corner of the Commerce and Laurel intersection. Robert soon made his own place in the community; when he was just twenty-three, he was elected sheriff. He served for three years, but thereafter never held public office again, despite requests for his involvement. At the end of his term as sheriff, he engaged in manufacturing bone buttons until, in 1836, he began working for Cumberland Nail and Iron Company.

When Joseph Whitaker withdrew in 1847, Buck, along with Nichols, purchased Whitaker’s interest in the company. Buck then moved to Phoenixville, and assumed management of the Phoenix Iron Works for a period of about ten years; Nichols became manager of the Bridgeton operation.

Robert C. Nichols had been born to General Robert Nichols and Sarah Van Dam Mesier Nichols in Brooklyn, NY. The Nichols family moved to Philadelphia; later, Robert C. Nichols moved to Norristown, PA, where he engaged in the manufacture of nails and iron. When he became a partner in 1847, his Norristown plant was consolidated with the Bridgeton plant; the Norristown machinery was physically transferred to Bridgeton.²²

At the Bridgeton plant, by the late 1830s, the demand for cut nails was pushing production to the limits of the available water power. Reeves & Whitaker secured an act of the New Jersey Legislature to build a dam across

the Cohansey at the approximate location of the current Washington Street Bridge. However, before it was constructed, a more efficient solution was developed.

The solution came from the expertise of Phoenix Iron Company's Chief Engineer, George Walters (1810-?) (figure 22). Walters, a Chester County, PA native, was first apprenticed to a coach maker, but at the age of twenty-eight moved to Phoenixville and joined the Phoenix Iron Company as a pattern maker and draftsman. He progressed rapidly through the company, and within a decade became Chief Engineer, a position he held for over twenty-five years. Among his accomplishments were the design of the blast furnaces at Havre-de-Grace, Maryland in 1844; design of the blast furnaces at Phoenixville in 1845; design and construction supervision of the rail mill at Phoenixville in c. 1846; superintendent of the rail mill at Safe Harbor, Pennsylvania, in c. 1846; construction of the plant at Spring Mill Furnaces, 1849; and design of the reconstruction of furnaces of Cambria Iron Company at Johnstown, Pennsylvania. He was the engineer for construction of the iron work for the International Railway Bridge built to cross the Niagara River at Buffalo between 1871 and 1873; he prepared all drawings at the Phoenixville plant, where the iron-work was fabricated, and duplicate copies of all drawings were sent to the contractor who erected the bridge. The bridge was constructed of twelve Pratt-truss spans, and is still in daily use. But perhaps Walters' greatest contribution was his innovative design for a blast furnace that used the same source of heat to both heat the iron and generate steam; the first use of this design was at Havre-de-Grace in 1844.

Three years after the new design was constructed in Havre-de-Grace, it was put into practice in Bridgeton, solving the problem of insufficient water power without the construction of a new dam. In 1847, a new rolling mill was constructed on the east side of the Cohansey, using Walter's innovation; it was operated by a steam engine, the steam being supplied by the same boilers that heated the iron. At this time, the rolling operation on the west side was abandoned, and all the water power from Tumbling Dam devoted to operation of the nail mills. With the elimination of the need for water power by the rolling mill, there was sufficient power to meet the needs of the nail operation.

A large pipe mill was constructed in 1853, on the east bank, north of the rolling mill. The company's operation was expanded to include the manufacturing of wrought iron, gas-pipe and water-pipe. Apparently, George Walters was responsible for the design of this expansion, as well.

CUMBERLAND NAIL AND IRON COMPANY

In 1855, Reeves, Buck & Co. was incorporated as Phoenix Iron Co. in Pennsylvania; David Reeves was president, and his son, Samuel J. Reeves (1818-1878) (figure 19) was vice president. Soon after the reorganization, David Reeves reportedly entrusted the operation and management of both the Phoenix Iron Co. and the Cumberland Nail and Iron Company to Samuel. However, Samuel Reeves apparently concentrated on management of the Phoenix plant. Robert S. Buck returned to Bridgeton and retained his financial interest in the company, but retired from active participation. When Cumberland Nail and Iron Company was incorporated in New Jersey in 1856, management of the Bridgeton operation continued to be the responsibility of the third partner, Robert C. Nichols, who in December of that year reportedly became president of the company as well as general manager.^{23,24} "Mr. Nichols...managed these works, and by his business tact and energy greatly increased their capacity and enhanced the reputation of their products."²⁵

Nichols was active in the Bridgeton community; he was one of the originators of the Bridgeton Building Association, was a director and then president of the Bridgeton Gaslight Company, and was a director of both the Cumberland Mutual Insurance Company and the Cumberland National Bank. He remained active in the Cumberland Nail and Iron Company until his retirement in 1871; he thereafter continued to be a stockholder.

In 1865, Robert Shute Buck purchased a controlling interest in Cumberland Nail and Iron Company. *The History of Gloucester, Salem and Cumberland Counties, New Jersey* describes both Robert Shute Buck and Robert C. Nichols as company president in the late 1860s.²⁶ The most likely explanation is that upon purchasing controlling interest, Buck became the equivalent of chairman of the board, while Nichols, in his role as general manager, became the equivalent of chief executive officer. Robert S. Buck continued in his role as chairman of the board until his death in 1877. When Robert Nichols retired in 1871, Robert James Buck (1845-1917), Robert S. Buck's son, became chief executive officer. Apparently, upon Robert S. Buck's death, Robert J. Buck then became chairman of the board as well.

By the 1880s the operation had reached its zenith (figures 6 through 12 and 26 through 30). Machinery consisted of ten double puddling-furnaces, four heating furnaces, two trains of rolls, eighty-four nail machines and six furnaces for welding gas and water pipes. A workforce of four hundred men produced annually one hundred forty thousand kegs of nails and four million feet of gas and water pipes.²⁷

In the 1890s, Robert J. Buck continued as president and his brother, Chester J. Buck (1847-1909) was vice-president; John M. Reeves (1849-1919), brother of Robert J. Buck's wife, was secretary and treasurer.²⁸ The last decade of the nineteenth century produced a series of adverse events that together led to the demise of the once-thriving cut nail industry. Wire nails, which were invented in the mid-nineteenth century, were making inroads at an increasing rate into the cut nail market because of their lower price. The Panic of 1893, which lasted until 1897 and was the most serious depression in the history of the country before the Great Depression, saw unemployment rise as high as seventeen to nineteen percent, the failure of five hundred banks, and the foreclosure of many middle-class mortgages. Throughout the decade, the fortunes of the Cumberland Nail and Iron Company fell and rose and fell again, with the people of Bridgeton ever hopeful the industry would once again return to its previous strength.

In January of 1892, *The New York Times* announced "The works of the Cumberland Nail and Iron Company, comprising puddling, sheet, pipe, and nail mills, have been closed indefinitely. A large number of workmen are thrown out of employment."²⁹ The nail mills resumed operation on 14 September 1894.³⁰ In 1895, the complex was leased to a New York firm.³¹ The puddling mill, which had reopened, closed again on 20 October 1895, only to reopen on 16 December of that year. The *Bridgeton Evening News* noted "it is gratifying to know that it has resumed operations."³²

What the *Bridgeton Evening News* called a "diminutive strike" took place at the coal yard in June 1898 when the laborers who unloaded the coal from the barges for \$1.25 a day stopped work and demanded a twenty-five-cent raise. The very next day, they returned to work when the company acceded to their demands and raised their pay to \$1.50 a day.³³

The next month, the once industry-dominant Cumberland Nail and Iron Company went into receivership, for unpaid mortgages amounting to \$175,000. Former Bridgeton mayor John Smalley was appointed receiver by the court. The two primary stockholders were company president Robert J. Buck and vice-president Chester J. Buck.³⁴

The end finally came on 09 December 1899, when the property was sold at public auction as part of the bankruptcy proceedings. The sale took place in front of the Hotel Cumberland, on North Laurel Street, at two o'clock on Saturday afternoon. A "vast number of people" gathered, with "bankers, lawyers capitalists, merchants, wage earners, farmers and the ever present small boy" represented.³⁵

The auction was under the authority of George H. Hampton, Special Master in Chancery, with real estate auctioneer H. L. Tyler conducting the bidding. A fifteen-minute synopsis of the premises description was read; it was estimated that it would have taken two hours to read the entire description.

The auctioneer started the bidding at \$100,000.

He dropped to \$90,000, to \$80,000, to \$75,000, and still no bid. He asked for \$70,000, and Frank M. Riley, cashier of the Cumberland National Bank, said, "I will bid \$70,000." This figure was called for several minutes, and there was no advance. "Without advance, I will sell this valuable property," called the auctioneer. "Going, going. Are you ready to have it knocked down? Going, fair warning, everybody...Going and sold to—" "Frank M. Riley, Trustee for the first and second mortgage bond holders," replied Mr. Riley, and the great plant, with all its vast property, had changed hands.³⁶

The initial reaction to the sale was one of great optimism. The bondholders immediately made arrangements with C. R. Baird & Co., of Philadelphia, to operate the plant, and it was anticipated it would be reopened within a month. However, it was not to be. The price of iron declined precipitously over the next months, and by December 1900, C. R. Baird & Co. was also in bankruptcy.³⁷

CLOCK

The double-faced clock is believed to have been installed in the office before 1830. The exterior face of the clock is labeled “John Whitehead.” John Whitehead (1791-1875), born in Pennsylvania, was a jeweler and clockmaker; it is possible he was the son of a John Whitehead who was a clockmaker in Woodbury, NJ in the 1750s. Before 1821, he had a shop in Woodbury; that year, he moved to Haddonfield, where the shop that he took over from clockmaker Job Hollinshead was located on the northwest side of King’s Highway, a few doors west of the Indian King Tavern.^{38,39} In 1822, he was made the librarian for the Haddonfield Library Company, in return for one share of stock in the company.⁴⁰

On Thursday afternoon, 24 March 1825, John Whitehead and Anne B. Ellis were married in Philadelphia by Rev. John Sisty, pastor of the First Baptist Church of Haddonfield.⁴¹ Anne (c. 1801-1873) was the daughter of Aaron Ellis (1774-1835) and Lucretia Ellis (1773-1863); the Ellises were members of the Haddonfield Baptist Church. John and Anne’s son William W. Whitehead was born in Haddonfield in 1828.

It appears that the family moved to Philadelphia in 1848. John Whitehead did not appear in the Philadelphia directories before that, but in 1848 he was listed as a clockmaker, at Nectarine below 11th.⁴² In the 1850 federal census, both John and his son, living in the same household, described themselves as watchmakers; in the directory for that year, John is not listed, but William W. appears as a clockmaker at 10th above Pleasant Street.⁴³ In 1855, John was listed as a clock and watch maker, and William as a watch maker, both at 295 N. 10th (probably the same address as in 1850 in a different format).⁴⁴ William Whitehead was a subscriber to the directory in 1857, giving him the advantage of having his name listed in capitals, but his father’s name did not appear that year; William’s address was at 301 N. 10th.⁴⁵ The next year, the Whiteheads moved to 459 N. 10th Street, the house, in conjunction with the one next door at 461, that the extended family occupied for the rest of John’s life. By 1870, John, then 79, and William, who had married and lived next door at 461 with his wife Sarah and five-year-old son Joseph, both identified themselves as jewelers; in the directory for that year, John lived and had his place of business at 459, and William lived at 461 but listed his place of business as 459.^{46,47} In 1875, both John and William were listed at 461 N. 10th, with John as a jeweler and William as a watchmaker.⁴⁸ John Whitehead died on 05 August 1875 at age 85 at 461 N. Tenth Street, Philadelphia; he was buried in Haddonfield.⁴⁹

William, who died in 1898, is buried in the cemetery of the First Baptist Church of Haddonfield; the family plot in which William is buried was purchased by him in 1858, but his parents are not known to have been buried there.⁵⁰ Ann’s parents Aaron and Lucretia Ellis are buried in the same cemetery. However, the church has no record of graves for John and Ann; if they are buried there with their son, grandchildren and Ann’s parents, their graves are unmarked and unrecorded.⁵¹

BRIDGETON CITY PARK

Gradually, over the course of the nineteenth century, the extensive land holdings of the Cumberland Nail and Iron Company became a *de facto* city park. Citizens boated on the raceway, and walked the paths and trails. The access to nature provided by the tract was used as a selling point for the private educational institutions in Bridgeton, particularly Ivy Hall Seminary, which was directly adjacent to the Cumberland Nail and Iron Company site. The Cumberland Nail and Iron Company appears to have encouraged, or at least did nothing to discourage, the enjoyment of the property by the public.

When the company went bankrupt and was sold at sheriff’s sale in 1899, the realization that the amenity, which had come to be accepted as an important aspect of Bridgeton life, could disappear, came as a shock to the people of the town. The Cumberland National Bank, the main creditor, which had bought in the property for \$70,000, was anxious to sell to recoup past losses; the assumption was that the most likely buyer would be a developer.

The property in question was on the west side of the River; on the east side, the old rolling mill, which had been vacated, was dismantled, and a new mill was built with “more powerful machinery and engines and greater horse power...The puddling mill, for rolling puddle iron into bar iron will remain as it is.”⁵² A year later, in May 1903, the puddling mill was about to go into operation, with the anticipation of work for 250 local men plus the importation of numerous puddlers.⁵³

Again, Bridgeton was overly optimistic. By 1908, both the rolling mill and the puddling mill, which were then owned by Adolph Segal of Philadelphia, were vacant, and the roof was falling in on the rolling mill. The Cumberland National Bank foreclosed on a \$250,000 mortgage in 1910, as no interest had been paid since 1904.⁵⁴ By 1915, the rolling mill had been demolished, and the puddling mill had been converted, or demolished and rebuilt, by the Arctic Ice & Milk Co. and the Bridgeton Condensed Milk Co.; a large section of the building was devoted to manufacturing ice cream.⁵⁵

Immediately after the Cumberland Nail and Iron Company bankruptcy, a movement was started to urge the city to buy the property on the west side of the river and make it an actual city park. The project began to take shape in April 1902. No less a Bridgeton personage than Oberlin Smith, founder and owner of Ferracuta Machine Company, wrote to the members of city council urging the purchase, and voicing the arguments many were making in favor of the move:

Learning that you are about to discuss the subject of purchasing the Raceway and the land adjacent to it, between here and the Tumbling Dam, and as citizens are requested to present their views upon this subject, I write to urge you most emphatically to purchase this property, if it can be obtained for any reasonable price.

There is no question but what this would be a good investment for the city, from a strictly financial point of view, as real estate is now very cheap and can hardly be expected to go lower. Both this land and the water-power connected with it will undoubtedly be of much greater value in future than now.

Furthermore, from a sanitary and aesthetic point of view, there is no question but what this, as well as other progressive cities should have ample public parks in a location readily accessible by all the citizens.

The land in question is already regarded as very beautiful by many outsiders who visit it, considering the comparatively level country in which we live. The Raceway and surroundings are regarded as the most beautiful natural objects anywhere in this vicinity, and it would be a burning shame to allow this lovely property to go into the hands of spectators <sic> who would cut down the trees and disfigure it with ugly buildings. It is our duty as citizens to look farther ahead, for the interests of our descendants, as well as for our own interests, and we have no right to allow such a splendid chance for a future beautiful park to slip through our hands, rendering it impossible to procure anything nearly as good, if we once allow the proposed purchase to linger until it is too late...

Not only is the ground in question preeminently suitable for park purposes, with an entrance right in the heart of the best part of the city, but fortunately, it can be adapted for this use with scarcely any expenses...⁵⁶

Smith's letter did not reach the city council before 01 April 1902, the first meeting at which a new ordinance to purchase the Cumberland Nail property was discussed, though the letter was later published in the *Bridgeton Evening News*. At the meeting, the public was given an opportunity to speak, and though "several prominent taxpayers" were present, none chose to speak. A letter was read into the record from B. W. Rogers, a member of the Real Estate Owners' Association, who protested the purchase on grounds of the initial expense, the cost of maintenance, and the likelihood of it resulting in higher taxes. The ordinance was taken up for the first reading and passed, but when taken up for the second, was postponed indefinitely.⁵⁷

Following the meeting, a letter-writing campaign began in the *Bridgeton Evening News* in favor of the purchase. Letters were published from Isaac T. Nichols on 05 April, William F. Weber on 11 April, and P. Kennedy on 12 April. All extolled the beauty of the property, the desecration that would be caused if private interests cut the timber, and the importance of the city taking advantage of the current opportunity to purchase it. The general consensus was that the value of the water power, plus revenue from boating rights and the production of the farm (located approximately where Alden Field is today) would offset operating costs.

Frank M. Riley, trustee for the Cumberland National Bank, withdrew his offer to sell the property in a communication with the city council that was read at the 13 May 1902 meeting. Following that meeting, the

issue fell from public view during the late spring and summer.⁵⁸ However, it appears that discussions continued in private. At the end of August, an illustrated article appeared in the *Philadelphia Inquirer* titled “Bridgeton May Soon Have a Delightful Public Park.” The article recounted that the 500-acre property was being offered to the city for \$35,000, and that private parties were negotiating for its purchase as well.⁵⁹

Finally, on 23 September 1902, public opinion prevailed, and the city council passed an ordinance on the first two readings to purchase the property for a park, after a public session during which many prominent citizens spoke in favor. As reported in the *Bridgeton Evening News*:

Bridgeton’s City Council met last evening in a session which will, perhaps, have more effect upon posterity than any other meeting which they have ever held.

The members by unanimous vote took action upon the purchase of a park for Bridgeton.

By their action the city will no doubt acquire the finest piece of property in the State of New Jersey for a public park. It will be a recreation ground forever and it furnishes an abundant water supply and power.

Last evening the space outside the rail was packed with representative citizens. The young men were there, business men, manufacturers, physicians, lawyers and men from all walks in life, to favor the purchase. Not one spoke a dissenting word, and all favored it not for themselves but for the city and the good it would do.⁶⁰

Citizens who spoke in favor included James G. Shaw, treasurer of the Bridgeton Woolen Company “To my mind the property is worth \$100,000 and is as picturesque as the Brandywine;” Rev. L. E. Coyle: “Bridgeton without the park would be like Hamlet with Hamlet left out;” Dr. Henry W. Elmer: “I would be very glad indeed to add my share of the tax... to help purchase this beautiful place and preserve it as a city park;” Dr. Joseph Tomlinson: “I can say that I have no doubt but the city must have the park. Its natural beauty is wonderful;” Frederick F. Smith, secretary of the Ferracute Machine Company: “I will speak of it on a business line. I can say that in my travels I have never seen a place so close to any town embodying the features of beauty and also the business advantages as this park.”⁶¹

On the third and final reading at the city council meeting on 14 October 1902, the ordinance was passed unanimously. By resolution, “Tumbling Dam Park” was selected as the name, for, according to Councilman Nichols, “they did not want to lose sight of the old and familiar name, and the park should be remembered as such.”⁶²

At the same meeting, Frederick Smith said “the city had been adversely advertised for two months past, on account of the many disasters, and people were wondering what kind of a place we lived in. He proposed to take pictures of the city, the Raceway and the lakes, and write them up in story form for the papers all over the county, and let our city be known as a beautiful little business city instead of one wrapped in disaster and debt.” All agreed on the merits of the idea, and a committee was appointed to pursue the project.⁶³

The transfer of the property took place on 06 January 1903, and was recorded at 10:00 am the following day.⁶⁴ The Tumbling Dam Park Commission was formed to operate the resource.

When the city was contemplating the purchase, one of the positive aspects of the undertaking was thought to be the opportunity to recoup expenditures by leasing the rights to the water power. To that end, the commission initially entertained proposals for industrial use of the nail factory site. A Mr. W. B. West of Philadelphia appeared before the commission in June 1903 with a request to lease the site to build a bleachery for cotton goods. The commission accepted his proposal and proceeded to prepare a lease, but the project never materialized.⁶⁵

Six years later, the Commercial League, newly-organized to bring industry to Bridgeton, came to the commission to discuss the possibility of a silk mill leasing the site. The commission formed committee to meet with the league, but no recommendation was issued.⁶⁶

The city moved ahead over the next few years to reconfigure the park. In 1905, the old stave mill was moved to a location along the raceway to be used for storing canoes.⁶⁷ The next year, Bridgeton City Council discussed a proposal from the Sheppard family for buying the tenant house east of Ivy Hall Seminary; the proposal was for the city to pay the Sheppard heirs \$200 a year as long as they lived, and after that the property would belong to the city. The city council accepted the offer.⁶⁸ The next month, the city sold the house, fences and outbuildings, which were to be removed within twenty days, so construction could begin on the park entrance.⁶⁹

At the 23 March 1903 meeting of the Tumbling Dam Park Commission, the office was rented to the West Jersey Tube Works at \$4.00 per month, with a month-to-month tenancy.⁷⁰ The business appears to have ceased operations within about a year. In 1906, Bridgeton resident Peter Boellard approached the commission about renting the office for an unspecified purpose, but his request was refused.⁷¹ By 1908 the office was being used for storage (figure 14). Most of the other Cumberland Nail and Iron Company buildings on the west side of the river were vacant and dilapidated, and by 1908, part of the roof on the nail factory had fallen in.⁷²

It was not until the city had owned the park for eight years, in 1910, that the industrial buildings were demolished:

Every Sunday there are many visitors inspecting the work that is being done of improving that part of the park property where the old nail mills formerly stood. Much astonishment is expressed at the amount of ground that is available for park purposes after the buildings have been removed.

Meanwhile the work is progressing steadily. The old storehouse is being torn down and as fast as the stones are removed from the solid old walls they are being laid by for the masons to form the construction of the stone wharf along the Cohansey.

The material which cannot be used in the construction work is being sold and will go a long way in providing for the expense of the entire work.⁷³

The commission continued to maintain the office. In 1909, the building was painted by Pedrick & Perry for \$60.00.⁷⁴ The next year new flooring was installed, and early in 1911, the clock was relocated from the east side of the building to the west side, so that it would face the park entrance.⁷⁵ Later that year, a special committee on repairs was authorized to “dispose of the old furniture in the office at its discretion.”⁷⁶

The commission was gradually readying the office for its own use, and on 04 January 1913 met there for the first time. At the same meeting, the Special Committee on Repairs reported that “the fire place had been built and general repairs made,” but whether this referred to the office or to one of the tenant houses still located in the park was not specified.⁷⁷ The next month, the Committee on Repairs to Office reported that “the office had been renovated and furnished at a very small expense, and was now ready for the use of the Commission.”⁷⁸

Following these renovations, the building was still divided into two rooms, as in April 1916 the city engineer was granted the use of the “entrance room.”⁷⁹ Later that summer, the commission expressed its thanks to Rev. Jewitt for repairing the clock, and paid Felmev Bros. \$.75 for glass for the clock face.^{80,81}

The need for a new roof on the office was brought up at the February 1919 meeting, and in May, A. T. Pennington was paid \$80.17 for the work. At the same meeting, the commission discussed a proposal by Edith L. Baldy and Margaretta G. Meyers to use the office building as a “Rest & Tea Room.” The application was tabled until the next meeting, where was turned down.⁸²

Charles Carney was paid \$133.75 for painting the office in April, 1921, and Sharp & Co. was paid \$48.00 for painting the office in December of that year. Possibly the one project was exterior painting, and the other, interior.⁸³ Just three years later, Sharp & Co. was paid \$68.31 to paint the exterior, in addition to expenditures of \$3.95 for a gallon of paint and \$2.40 for two gallons of linseed oil.⁸⁴

In 1926, the City Clerk applied for and was granted the use of the south room as a polling place for the primary election.⁸⁵

Until spring of 1927, the office was lit with gas lamps. At the April 30 meeting that year, the commission received a request from the Bridgeton Gas Light Company that they be allowed to discontinue the service to the

office, as the gas main running into the park was leaking, but could not be located because of inaccurate records; the company wanted to disable the system. The commission voted to proceed with wiring the office for electricity. By the 01 July 1927 meeting, the fixtures had been connected.⁸⁶

On 06 December 1927 the Bridgeton City Council and the Park Commission held a ceremony to burn the matured bonds used to purchase the property twenty-five years before. The bond issue had been \$40,000; by 1927, the tract was considered to be worth half a million dollars. One local authority thought that its value to the citizens of Bridgeton was such that a hypothetical ballot proposition to sell it for a million dollars would be voted down. "During all the quarter of a century Bridgeton has had the use of the beautiful park and the payment distributed over that period has scarcely been felt."⁸⁷

The farm that was acquired with the park continued to operate, bringing the city as much as \$2,000 a year. In 1930, when the new high school on Broad Street was nearing completion, the Park Commission was approached about reducing the size of the farm, which had fields reaching to West Avenue, and turning over some of the land to recreational use. It was anticipated that accommodation could be made for "baseball, tennis, football and perhaps a track."⁸⁸ The farm continued to operate in a reduced capacity into the 1940s.

The Park Commission stopped meeting in the building in late 1930; their November meeting that year, as well as subsequent meetings, were held at the Atlantic City Electric Company building (probably the one at 14 N. Pearl Street).⁸⁹ The Junior Civic Club of the City of Bridgeton presented an application for the use of the office as a meeting place for its activities at the 27 April 1934 commission meeting; they agreed to pay for all "repairs and redecorations."⁹⁰ The commission granted the club the use of the north room, with the repairs to be made under the supervision of the Park Superintendent.

In 1944, the commission "completely renovated" the building; renovations included demolishing interior partitions and constructing the extant fireplace. Following the renovation, from 30 October to 05 November of that year, a local committee known as the Art Exhibit organized a display of Bridgeton artistic talent; seventy-six exhibits by twenty-six artists were open to the public without charge. The Civic Club hosted a tea in front of "blazing logs in the huge fireplace," with "members graciously serving tea to all who came."⁹¹

In 1969, the Cumberland Nail and Iron Company Office was leased to the Bridgeton Antiquarian League as their headquarters and museum.⁹² The society restored the building and opened it to the public on a limited basis. In the early twenty-first century, the league disbanded. The bulk of the collection belonging to the league was removed to a city-owned property in the park while the inside of the building was painted and repaired.

End of Background and Historical Analysis

Endnotes
Background and Historical Analysis

¹ “Nail Makers Wanted,” *Boston Gazette*, 17 August 1818.

² Cumberland County Registry of Deeds, Book 265, Page 161.

³ The other building is the brick pattern shop, adjacent to the Raceway. Conversation with James Bergman, 16 December 2010.

⁴ John Milner Associates, “Cultural Resource Assessment of the City Park, Bridgeton, New Jersey,” February 1980, p. 3-4.

⁵ Ebenezer Seeley was the father of Elias Pettit Seeley, who served briefly as governor of New Jersey in 1833, filling out the term of Samuel Lewis Southard, who had been elected US Senator.

⁶ Thomas Cushing and Charles E. Sheppard, *History of the Counties of Gloucester, Salem, and Cumberland New Jersey*, Philadelphia: Everts & Peck, 1883, pp. 594, 599.

⁷ Federal Writer’s Project of the Works Progress Administration for the State of New Jersey, *New Jersey: A Guide to Its Present and Past*, New York, NY: Hastings House, 1939, p. 636.

⁸ “Regarding the early history of the area now comprising Bridgeton City Park, Cushing and Sheppard (1883:502) state that this was part of a ten thousand acre parcel conveyed to Edmund Warner in 1675, half of which was quickly sold to John Mason. Cornelius Mason, having inherited the parcel from his father, undertook to have the land surveyed in 1689 and began referring to the tract as Winchcomb Manor. Cornelius Mason, Jr. subsequently willed the land to Joseph Mason and the tract was then sold to Israel Pemberton of Philadelphia. The legality of the Mason Survey was apparently in doubt, as it had not been properly recorded, and others began laying claim to portions of the land. Among those contending for ownership was John Garrison who built a house and settled north of what is now Jeddy’s Pond (Cushing and Sheppard 1883:502). This settlement was conveyed to Silas Parvin in 1735 who then come into conflict with Israel Pemberton, the latter bringing suit against Parvin in 1783. When both individuals died in 1788 the land was sold to Jonathan Bowen by Sheriff Joseph Buck and subsequently conveyed to Smith Bowen in 1790.” John Milner Associates, “Cultural Resource Assessment of the City Park, Bridgeton, New Jersey,” February 1980, p. 4.

⁹ Francis Bazley Lee, compiler and editor, *Genealogical and Memorial History of the State of New Jersey*, Vol III, New York, NY: Lewis Historical Publishing Company, 1910, p. 1112.

¹⁰ Charles E. Elmer, *Brief History of Cumberland Bank and Cumberland National Bank*, Bridgeton, NJ: John Cheesman, Printer, “Patriot” Office, 1887, p. 4.

¹¹ Samuel W. Pennypacker, governor of Pennsylvania 1903-1907, in *History of Phoenixville and its Vicinity*, said of David Reeves "He was president of the Phoenix Iron Company from its incorporation until 1871, during the whole of which period it immensely increased in capital and production, and at the time of his death he was the largest stockholder in that company, and was probably the wealthiest man in Chester County. He will long be remembered for his true gentility, which was exhibited not only in courteous manners, but in the kind treatment of even the most abject who were brought in contact with him, and for his profuse generosity. The esteem in which he was held by the community is best evidenced by the fact that his death caused general mourning, and his funeral at Laurel Hill [Philadelphia] was attended by so many of the people of Phoenixville that they filled thirty-four cars and required three trains. The employees of the company determined unanimously to erect a monument to his memory, since completed at a cost of about six thousand dollars, and the Borough Council, with equal zeal, have acquired a grant of land to be ornamented and converted into a park bearing his name."

- ¹² Francis Bazley Lee, compiler and editor, *Genealogical and Memorial History of the State of New Jersey*, Vol. III, New York, NY: Lewis Historical Publishing Company, 1910, p. 1112.
- ¹³ Maureen K. Phillips, “Mechanic Geniuses and Duckies,” A Revision of New England’s Cut Nail Chronology before 1820,” *APT Bulletin*, Vol. XXV, Numbers 3-4, Fredericksburg, VA: Association for Preservation Technology International, p. 5.
- ¹⁴ *Ibid.*, pp. 6-9.
- ¹⁵ United States Patent Office, “Machine for Heading Spikes and Nails,” Patent No. 584, 27 January 1838.
- ¹⁶ United States Patent Office, “Gaging and Heading movement for Spike Machine,” Patent No. 8107, 20 May 1851.
- ¹⁷ “Nail Makers Wanted,” *Boston Gazette*, 17 August 1818.
- ¹⁸ *Baltimore Patriot*, 10 February 1824; “Fire,” *Federalist*, Trenton, NJ, 16 February 1824; “Misfortune,” *City Gazette*, Charleston, SC, 17 February 1824; *Sentinel & Witness*, Middletown, CN, 18 February 1824.
- ¹⁹ Kevin Hillstrom and Laurie Collier Hillstrom, *The Industrial Revolution in America*, Vol. 2, Santa Barbara, AC: ABC-Clio, 2005, p. 57.
- ²⁰ Hagley Museum and Library database, “Phoenix Steel Corporation,” Records, 1827 – 1963.
- ²¹ In 1846, the Reeves formed a second partnership, Reeves, Abbot & Company, to construct a rolling mill at Safe Harbor on the Susquehanna River in Pennsylvania. These two plants in Pennsylvania produced one-eighth of all the iron rolled in that state.
- ²² Cushing and Sheppard, *History of Gloucester, Salem, and Cumberland*, p. 597.
- ²³ J. Peter Lesley, *American Iron and Steel Association*, New York: J. Wiley, 1859.
- ²⁴ Cushing and Sheppard, *History of Gloucester, Salem, and Cumberland*, p. 597.
- ²⁵ *Ibid.*, p. 597.
- ²⁶ By 1892, Robert J. Buck was president and Chester J. Buck was vice-president; both were sons of Robert Shute Buck. John M. Reeves was secretary and treasurer.²⁶
- ²⁷ Cushing and Sheppard, *History of Gloucester, Salem, and Cumberland*, p. 597.
- ²⁸ J. P. Crittenden and Charles B. Helfrich, compilers, *Philadelphia Securities*, Philadelphia, PA: Burk & McFetridge, 1892.
- ²⁹ *The New York Times*, 22 January 1892.
- ³⁰ *Bridgeton Evening News*, 15 September 1894.
- ³¹ *The New York Times*, 23 May 1895.
- ³² *Bridgeton Evening News*, 16 December 1895.
- ³³ *Bridgeton Evening News*, 14 June 1898.

³⁴ Chester J. Buck was still living in his home on West Commerce Street in Bridgeton when he died in 1909. It appears that following the demise of Cumberland Nail and Iron Company, Robert J. Buck and John M. Reeves both retired to Phoenixville. It was in Robert Buck's home at 244 Second Avenue in Phoenixville that his funeral service was held on 21 June 1917; John Reeves died in the same house, his sister's home, two years later to the day, following a stroke the week before. *Bridgeton Evening News*, 01 June 1909; *Philadelphia Inquirer*, 21 June 1917; *Bridgeton Evening News*, 23 June 1919.

³⁵ *Bridgeton Pioneer*, 14 December 1899.

³⁶ *Bridgeton Pioneer*, 14 December 1899.

³⁷ "C. R. Baird & Co. in Receiver's Hands – Said to Owe \$1,500,000," *New York Times*, 27 December 1900.

³⁸ Carl M. Williams, *Silversmiths of New Jersey 1700-1825*, Philadelphia: George S. MacManus Co., 1949, p. 61.

³⁹ George R. Prowell, *A History of Camden County, New Jersey*, Philadelphia: L. J. Richards & Co., 1886, p. 614.

⁴⁰ Howard L. Hughes, *Public Libraries in New Jersey, 1750-1850*, New Jersey Library Association, 1965, p. 24.

⁴¹ Marriage records in the diary of Rev. John Sisty, relayed in a telephone conversation with First Baptist Church of Haddonfield secretary Virginia Timms, 29 October 2010.

⁴² *McElroy's Philadelphia Directory for 1848*; Philadelphia: Edward C. & John Biddle, 1848. p. 382. Nectarine is a small east-west street, one block below Spring Garden; only a few sporadic blocks of it have survived twentieth-century development.

⁴³ *McElroy's Philadelphia Directory for 1850*; Philadelphia: Edward C. & John Biddle, 1850. p. 446.

⁴⁴ *McElroy's Philadelphia Directory for 1855*; Philadelphia: Edward C. & John Biddle, 1855. p. 596.

⁴⁵ *McElroy's Philadelphia Directory for 1848*; Philadelphia: Edward C. & John Biddle, 1848. P. 382

⁴⁶ US Federal Census, 1850, 1860 and 1870.

⁴⁷ *Gopsill's Philadelphia Directory*, Philadelphia: James Gopsill, 1870, p. 1599.

⁴⁸ *Gopsill's Philadelphia Directory*, Philadelphia: James Gopsill, 1875, p. 1585.

⁴⁹ *Philadelphia Inquirer*, 09 August 1875.

⁵⁰ Conversation with Mark Craig, Cemetery Director, First Baptist Church of Haddonfield, 22 October 2010. When William died in 1898, he was described as "the son of John Whitehead, a watch and clock maker" and as "one of the best known jewelers in the neighborhood of Philadelphia. "Death of William W. Whitehead," *The Jewelers' Circular and Horological Review*, Vol. 37, 1898, p. 19.

⁵¹ Aaron and Lucretia Ellis and an Eliza Lewallan are buried in three graves of a six grave plot; the footstones from their three graves, with the initials "AE," "LE," and "EL," have been relocated as headstones on the three additional grave locations. The church has no record of whom, if anyone, might be buried in those three unmarked locations. Conversation with Mark Craig, 05 November 2010.

⁵² *Bridgeton Evening News*, 10 May 1902.

⁵³ *Bridgeton Evening News*, 01 May 1903.

- ⁵⁴ *Bridgeton Evening News*, 26 November 1910.
- ⁵⁵ Sanborn Maps, 1908 and 1915.
- ⁵⁶ *Bridgeton Evening News*, 10 April 1902.
- ⁵⁷ *Bridgeton Evening News*, 02 April 1902.
- ⁵⁸ *Bridgeton Evening News*, 14 May 1902.
- ⁵⁹ *Philadelphia Inquirer*, “Bridgeton May Soon Have a Delightful Public Park,” 25 August 1902.
- ⁶⁰ *Bridgeton Evening News*, 24 September 1902.
- ⁶¹ *Bridgeton Evening News*, 24 September 1902.
- ⁶² *Bridgeton Evening News*, 15 October 1902.
- ⁶³ *Bridgeton Evening News*, 15 October 1902.
- ⁶⁴ Cumberland County Registry of Deeds, Book 265, Page 161.
- ⁶⁵ Tumbling Dam Park Commission minutes, 09 June 1903, p. 10. In the collection of the Bridgeton Free Public Library.
- ⁶⁶ Commission minutes, 01 May 1909, p. 90.
- ⁶⁷ *Bridgeton Evening News*, 09 March 1905.
- ⁶⁸ *Bridgeton Evening News*, 13 June 1906.
- ⁶⁹ *Bridgeton Evening News*, 07 July 1906.
- ⁷⁰ Commission minutes, 23 March 1903, p. 4.
- ⁷¹ Commission minutes, 05 May 1906, p. 48.
- ⁷² Sanborn map, 1908.
- ⁷³ *Bridgeton Evening News*, 10 October 1910.
- ⁷⁴ Commission minutes, 30 October 1909, p. 97; and 04 December 1909, p. 98. Pedrick & Perry was a Bridgeton-based partnership of Albert O. Perry and Martin Pedrick.
- ⁷⁵ Commission minutes, 05 December 1910, p. 116.
- ⁷⁶ Commission minutes, 01 July 1911, p. 125.
- ⁷⁷ Commission minutes, 04 January 1913, p. 145.
- ⁷⁸ Commission minutes, 01 February 1913, p. 147.
- ⁷⁹ Commission minutes, 28 April 1916, p. 218.

⁸⁰ Commission minutes, 28 July 1916, p. 222.

⁸¹ No Rev. Jewitt has been identified in Bridgeton, but a Rev. F. L. Jewitt was pastor of the Pitman Methodist Episcopal Church during this period.

⁸² Commission minutes, 28 February, 02 May, and 29 May, 1919, pp. 263, 265, and 267.

⁸³ Commission minutes, 01 April 1921, and 16 December 1921, pp. 300 and 316.

⁸⁴ Commission minutes, 31 October 1924, p. 379.

⁸⁵ Commission minutes, 30 April 1926.

⁸⁶ Commission minutes, 30 April, 03 June, and 01 July 1927.

⁸⁷ *Bridgeton Evening News*, 27 November 1927.

⁸⁸ *Bridgeton Evening News*, 06 January and 01 March, 1930.

⁸⁹ Commission minutes, 28 November 1930.

⁹⁰ Commission minutes, 27 April 1934.

⁹¹ "The Art Exhibit," *We Women: The Women's Magazine of Bridgeton, New Jersey*, Vol. 6, No. 11, November 1944, p.2.

⁹² *Taken to Learn Nailing*, Bridgeton Bicentennial Commission, Bridgeton, NJ: 1976, p. 19.

CHRONOLOGY OF CONSTRUCTION

INTRODUCTION

The **Chronology of Construction** section of this *Preservation Plan* presents a brief overview of the sequence of significant changes to the building and the site of the Cumberland Nail and Iron Company Office. This Chronology of Construction is based on documentary research and field investigations.

The Chronology of Construction addresses the:

- Methodology of investigation;
- First Build: Initial construction, c. 1815;
- Second Build: North extension, mid nineteenth century;
- Third Build: North wing, before 1866;
- Fourth Build: Bridgeton City Park renovation, 1944.

A correct understanding of the construction chronology of a historic building is essential to the rehabilitation, preventive conservation and interpretation of the building to its appropriate Period of Significance. This Chronology of Construction section provides the information and basis for that understanding.

METHODOLOGY

The chronology of construction for the Cumberland Nail and Iron Company Office was researched and established through the following steps:

- Assembly and review of documentation as well as available photographs and other reference materials pertaining to the Cumberland Nail and Iron Company in its various partnership and corporate configurations;
- On-site observations of the structure;
- Comparative study of significant construction details;
- Comparative analysis of evidence yielded from the above investigations.

FIRST BUILD: INITIAL CONSTRUCTION, 1815

Until sometime in the twentieth century, the building had a cornerstone, in the southwest corner, inscribed with the date 1815; a surviving record of this is the basis for definitively dating the First Build to the year of the founding of the company.¹

The original office building is comprised of the southernmost two-thirds of the south section, 14'-3" wide from east to west, and 20'-9" long from north to south. The primary evidence that this is the original section is found in the attic. What were the end rafters on the north wall of this section have surviving remnants of brick nogging, which was used as insulation. The nogging has finished joints and is whitewashed on the south side, facing into what was the attic; on the north side, which would have been up against the exterior cladding when the nogging was constructed, the mortar is not struck, and the bricks are not whitewashed (compare figure 61 with figure 62). There is similar whitewashed nogging set in the rafters on the south side.

There are three further pieces of supporting evidence:

- What was a sill for the north wall of the original construction, and now acts as a joist, is set entirely within the footprint of the south section;
- The shutter dogs on the five windows in the First Build are hand forged iron; the shutter dogs on the Second and Third Builds are cast iron, a later material (compare figure 46 with figures 47 and 48);
- The 1815 cornerstone reportedly was in the southwest corner of the foundation.

The primary façade on the west, which faced the cartway entering the site, had a center door flanked by a six-over-six sliding/fixed window on each side (the upper sash is fixed, and the lower sash slides up and is secured by a spring-loaded catch). On the east side facing the nail mill, the door was to the south end with a six-over-six window in both the center and north bays. A six-over-six window was centered on the south gable façade, and there may have been a similar window in the north façade. The extant window with the pointed-head is contemporaneous with the Third Build.

The roofing was wood shingles. The weatherboards were beaded on their lower edges. The windows were protected with three-panel wood shutters. The foundation was conglomerate Jersey sandstone (figure 27).

When the building was constructed, there was a steep stair into the attic. The stair was located in the southwest corner; the current hatch occupies part of what was the opening in the attic floor for the stair (figure 65).

There was no plaster ceiling in the one-room space. The room was open to the underside of the attic floor, with the joists exposed and whitewashed. The walls between the studs were filled with brick nogging. It is possible that the first-story walls were also unplastered; if whitewash is found on studs or on the interior side of the brick nogging on the first floor, as it is in the attic, it would be evidence of lack of plaster on the walls during the First Build.

Probably the building was heated with a stove; there is a round hole in the attic floor roughly in the center of the section, and the roof above is framed out for a chimney. It was not unusual in architecture of the period to have a chimney begin in an attic, bearing on wood framing, and passing up through the roof. An early twentieth-century photograph shows a chimney in the roof ridge of the First Build (figure 32).

A photograph taken in the 1870s shows a flight of exterior steps on the east side starting south of the First Build south foundation and running up toward the north to a landing at the door (figure 27). Though these steps had probably been rebuilt after half a century of weathering, they may reflect the configuration of the original east façade steps.

SECOND BUILD: NORTH EXTENSION, SECOND QUARTER, NINETEENTH CENTURY

The first addition to the building was a straight extension to the north of about 13'. The juncture between the First Build and Second Build is marked by vertical boards on both the east and west facades which may have been corner boards on the original construction. There is a window approximately centered on both the east and west facades of the addition. Again, there may have been a window in the north gable end.

The First and Second Builds continued to be heated by a stove in the First Build. At this time, the ceiling of both the First and Second Builds was plastered, using sawn lath, and the walls of the First Build were plastered if they had not been previously. It has not been determined if brick nogging was used in the walls of the Second Build. The double faced clock may have been added at the time of the third build.

THIRD BUILD: NORTH WING, C. 1850s

Sometime before 1866, the office was almost tripled in size when a 51'-10 1/2" by 16'-2 1/2" wing, with a ridge running east-west, was attached to the north end of the Second Build. The most likely date for this work is in the late 1840s or 1850s, when the operation was being expanded and the business incorporated. The vernacular Gothic revival form of this wing is a likely style for that period.

The foundation of the Third Build was conglomerate Jersey sandstone, like the First Build. A bulkhead entrance was located on the east side, in the location of the current basement entrance (figure 27). There is no evidence, where there is access for observation, that there is brick nogging in the walls.

This wing has a higher ceiling than the first two builds, and the six-over-six double-hung windows are larger than those in the earlier sections. Two windows are located on the north elevation, and one each on the east and west gable ends.

When the Third Build was constructed, fairly extensive changes were made to the First and Second Builds. The building was remodeled on the exterior to make its appearance cohesive and attractive, with an orientation toward the west; gothic revival details were added to what had been a simple vernacular structure. Hoods were added over the windows on the First and Second Build to match those on the new construction (figure 53), and in the south gable, the window was changed to a vernacular gothic style, with a pointed head, matching the window in the new west gable. The window in the new east gable, which faced the factory instead of the property entrance from Commerce Street, was a plain with a flat head. This north section was heated by a stove served by a chimney centered on the ridge (figure 64).

On the interior, casings around the windows and west door and the baseboards in the First and Second Builds were changed to match those in the Third Build.

In 1935, a built-in safe was described; at that time the safe was extant:

Many of its original architectural features and furnishings are still preserved and perhaps the most curious of these is a unique built-in safe. A door designed to resemble one of wood that might lead into a closet or another room, is in reality the entrance to the vault. Within are another pair of doors and back of them a self-lined vault on which the account books and other valuables of the company were once kept.²

The safe was supported by the massive New Jersey conglomerate sandstone foundation still extant in the basement (figure 66).³ The foundation is partially under the Second Build and partially under the Third Build; this is evidence that it was built as part of the Third Build.

FOURTH BUILD: TWENTIETH-CENTURY ALTERATIONS

Various minor improvements were made to the office by the Tumbling Dam Park Commission during its first thirty-five years of operation. The most notable of these were the replacement of part of the floor (apparently that in the First Build section) in 1910, the relocation of the clock from the east façade to the west façade in 1911 (so it would face the park entrance); installation of a new roof in 1919, and electrification of the building in 1927.^{4,5,6}

In 1944, the Bridgeton City Park Commission renovated the building. The safe seems to have survived until after 1935, but was removed as part of the renovations. The two chimneys, in the First Build and Third Build, also were removed at that time, when the chimney and fireplace on the north end were constructed.

The following changes are believed to have been made in 1944:

- The removal of interior partitions;
- The removal of the two chimneys centered on the ridges;
- The removal of the built-in safe;
- The construction of the fireplace and chimney on the north end.

Additional changes are known to have been made by the City of Bridgeton, but the dates of the work have not been determined. These changes include:

- Removal of exterior steps to the east door (first decade of twentieth century) (figure 27);
- Construction of the restroom in the southeast corner of the First Build (probably c. 1970);
- Construction of the concrete masonry unit foundation and poured concrete basement floor;
- Construction of exhibit cases (probably c. 1970);
- Construction of a large patch in the floor in the northwest quadrant of the Third Build;
- Replacement of the plaster ceiling in the First and Second Builds with gypsum board (c. 2007);
- Refinishing floors with polyurethane (c. 2007);
- Installation of downlights and chandeliers;

- Disassembly of window hoods on exterior now stored in basement (after 1973) (figures 37, 38 and 53).

End of Chronology of Construction

Endnotes
Chronology of Construction

- ¹ Carl M. Williams, "Quaint Frame Park Building," newspaper clipping, unnamed newspaper, 1935.
- ² Williams, "Quaint Frame Park Building." The article states "Many of these books and papers, now musty with age, still remain in this safe."
- ³ Telephone conversation with James Bergman, 24 February 2011.
- ⁴ Commission minutes, 05 December 1910, p. 116.
- ⁵ Commission minutes, 28 February 1919, p. 263.
- ⁶ Commission minutes, 30 April, 03 June, and 01 July 1927.

ANALYSIS OF EXISTING CONDITIONS

INTRODUCTION

The **Analysis of Existing Conditions** section summarizes the methodology and results of an assessment and analysis of the existing exterior and interior conditions of the Cumberland Nail and Iron Company Office.

The **Analysis of Existing Conditions** addresses the following:

- Methodology of investigation;
- Site;
- Climate context;
- Foundation and masonry;
- Framing;
- Roofing and moisture protection;
- Exterior wood cladding and trim;
- Exterior finishes;
- Windows, doors and shutters;
- Barrier-free accessibility;
- Interior spaces; and
- Building systems.

Observation and analysis of the existing conditions provide a basis for understanding the processes of deterioration that act on a historic structure and the conditions or factors that cause or facilitate these processes. An understanding of the conditions of a historic structure, and the processes of deterioration that result in these conditions, is a prerequisite for further research or future repair and treatment.

METHODOLOGY

SITE, BUILDING AND SYSTEMS ASSESSMENT

The existing conditions that are encountered at any given time in a historic structure are a function of the following:

- Materials of construction;
- Quality of workmanship;
- Durability of the design and detailing;
- Environmental factors, including atmospheric pollution;
- Age and type of service of the structure;
- Subsequent repairs and alterations;
- Maintenance actions over the life of the structure.

All of the above factors have contributed, in differing degrees of importance, to the existing conditions found at the Cumberland Nail and Iron Company Office.

The existing conditions of the building were established through qualitative analysis consisting of:

- Observation of accessible surfaces;
- Assembly and review of historic photographs;
- Analysis of existing room arrangements and materials;
- Review of the evidence yielded by the above investigation to identify existing conditions, their extent, and the probable factors which caused or contributed to the conditions.

On 09 July 2010, Penelope S. Watson, AIA, performed an interior condition and exterior assessment; and Maria Cerda-Moreno, AIA, Associate Architect, and Jaime Bustos, Architectural Intern, measured the building. On 28 October 2010, Ms. Watson and Michael C. Henry, PE, AIA, Principals of Watson & Henry Associates, and Stephen

Barndt, Construction Project Manager, visited the site, and on 03 November 2010 Mr. Henry, accompanied by Ms. Watson, performed an assessment of the building structure and systems.

The on-site evaluations included observation of accessible areas and surfaces of the:

- Site;
- Exterior of the building from grade;
- Interior of the building;
- Building systems.

The on-site evaluation consisted of visual examination, and narrative and photographic recording of critical conditions. Samples were not taken for analysis, nor were areas of the exterior envelope disturbed for examination of concealed conditions. Interior investigation did not involve removal or temporary removal of any historic fabric. Preparation of construction documents for any restoration or repairs will require further examination.

The information yielded by the above steps was then reviewed as a whole, and the conditions were established as being comparatively good, fair, or poor. In some cases, conditions were assessed as indeterminate.

COLLECTIONS ASSESSMENT

The Cumberland Nail and Iron Company Office served for several decades as the museum of the Bridgeton Antiquarian League. A few years ago, the bulk of the objects and papers exhibited and stored in the building were donated to the City of Bridgeton by the Bridgeton Antiquarian League, and were removed, reportedly for safe-keeping during construction activities. However, certain items remain in the first floor, and throughout the basement. An assessment of the environmental vulnerabilities and conditions of this collection (within the building and in other locations) is beyond the scope of this report, but it is obvious that the items remaining in the building are at risk of loss and accelerated deterioration.

SITE

The Cumberland Nail and Iron Company Office is located on Mayor Aitken Drive in the Bridgeton City Park, in the City of Bridgeton, Cumberland County, New Jersey. The west entrance façade faces Mayor Aitken Drive. A grassy area separates the building from the public sidewalk. Foundation shrubbery has been planted along the north and most of the west facades. A brick walk from the public sidewalk provides access to the building (figure 40).

The site slopes down from Mayor Aitken Drive to the west toward the building (figure 43). A level berm has been constructed from the public sidewalk to the west entrance, but to the north and south of the berm water drains toward the building foundation. This drainage toward the building has caused perennial problems. In a photograph taken in the early twentieth century (figure 32), it is apparent that part of the foundation had been reconstructed; the foundation is field stone on the west side, and brick on the south side. In the second half of the twentieth century, the foundation failed again, and the entire foundation was rebuilt of concrete masonry units with a cementitious parge (figures 42, 43, and 73).

To the south and east, the grade slopes away from the building (figures 39 and 42); on the east, a terraced area interrupts the slope. A machine to manufacture spikes, remaining from the Cumberland Nail and Iron Company, is situated at the base of the slope between the building and the river.

On the north and west sides, there are foundation plantings of yews (figures 40 and 41). The yews are healthy and attractive, but are not historically accurate (figure 32 and 38).

Five large sycamore trees are in close proximity to the building, two on the west side, and one on the south and two on the east. The south tree on the west leans toward Mayor Aitken Drive, and is cabled to the southeast of the building. In addition, a branchless trunk of a dead sycamore is located close to the south façade. These trees appear in an early-twentieth-century photograph, at which time they were thirty-five to forty years old. This means they were planted by the Cumberland Nail and Iron Company, and, in addition to their intrinsic value as mature trees,

they have value as part of the historic context of the Cumberland Nail Office and as rare surviving remnants of the nineteenth-century industrial site.

Parking is not allowed on Mayor Aitken Drive, but there is a parking lot immediately south of the site; this lot is owned by the City of Bridgeton and is leased to the Salvation Army. The lot is not fully utilized, and parking spaces are usually available.

The fill cap for the fuel storage tank in the basement is located at the south foundation wall.

Electrical service is provided by an overhead electrical service from a utility pole 250 CP located on Mayor Aitken Drive southwest of the building; the service passes through a meter on the west end of the south elevation, and runs to a panel box in the southwest corner of the basement. The telephone service is provided by an overhead service from the same pole, and runs to the southeast corner of the south section.

Water and sewage are provided by city services, and enter the basement from Mayor Aitken Drive at the south end of the west side.

The conditions of the site are summarized as follows:

- Good with respect to fire apparatus access to the building;
- Good with regard to fire exposure from adjacent properties;
- Good with respect accommodations for visitor parking;
- Poor with regard to site drainage of surface water;
- Good with respect to the availability of water and sewage service;
- Good with respect to barrier-free access to the first floor entrance.

CLIMATE CONTEXT

Climate introduces a number of significant factors in the deteriorative processes affecting building and collections materials and their longevity. Climatic factors may frequently recur over long periods; their effects may not be discernable from day to day, but the cumulative long-term result of individual factors can be significant. Large-scale climatic variables may be exacerbated or attenuated by small-scale climatic factors specific to the structure, its site and its orientation. Building geometry and occupancy may also increase or diminish these climatic effects. Lastly, building envelope and systems act to buffer and offset the extreme values of climatic factors.

The Cumberland Nail and Iron Company Office is located in the mid-Atlantic region of the United States in Bridgeton, Cumberland County, New Jersey. The National Climatic Data Center (NCDC) published data is available for Atlantic City (New Jersey) Airport, located approximately forty miles east of Bridgeton. The NCDC data includes:

- Important variables such as wind speed and direction, solar radiation and atmospheric moisture (relative humidity and wet bulb temperature readings);
- Compiled averages of the above variables for the monitoring period;
- Graphical illustrations of compiled data that make the information comprehensible.

The data (Appendix C) are summarized as follows::

- Summer median extreme high temperature: 98°F (dry bulb), 104 grains water/lb. dry air;
 Summer 1.0% occurrence, high temperature: 88°F (dry bulb), 100 grains water/lb. dry air;
 Summer median high humidity ratio: 83°F (dry bulb), 141 grains water/lb. dry air;
 Summer 1.0% occurrence, high humidity ratio: 80°F (dry bulb), 127 grains water/lb. dry air;
- Winter median extreme low temperature: -1°F (dry bulb), 4 grains water/lb. dry air;
 Winter 99.0% occurrence: 12°F (dry bulb), 7 grains water/lb. dry air;
- Median daily dry bulb temperature range: 19°F;

south section was rebuilt of brick, leaving the fieldstone foundation under the west wall intact (figure 32). Other areas of foundation may have been rebuilt, but there is no photographic evidence available to confirm. In the third quarter of the twentieth century, the foundation failed, and the building was reportedly in danger of sliding down the slope toward the river. It was to rectify this emergency situation that the extant concrete masonry unit foundation was constructed.

The First Build has brick nogging in the walls between the studs. The presence of nogging in the Second Build has not been determined; there is no evidence of nogging in the Third Build.

There remains in the basement a massive rubble fieldstone foundation for the company's safe, partially in the center section and partially in the north, centered between the east and west walls. The foundation exhibits cracks and displacement, and has been stabilized by three bands, each comprised of four iron bars bolted together at the corners (figure 66). Wood planks, inserted vertically, are used as shims between the iron bars and the masonry. This stabilization project was almost certainly performed by Cumberland Nail and Iron Company, using their own product as material.

The Cumberland Nail Company Office has two brick chimneys. One chimney is centered on the north wall; it projects out from the wall for part of its depth, and forms the back of the fireplace (figure 41). On the exterior, the brick structure tapers in from mid wall to the eave line; the chimney then rises straight up, with a second, smaller taper on all sides at the top. This chimney, which serves only the fireplace, functions as a decorative focus on the north exterior wall. The chimney has some vegetative staining, but the bricks and mortar are intact.

The second chimney is purely utilitarian, and serves the furnace in the basement. It is located on the east wall of the south section, outside the footprint of the building (figure 42). The bricks and mortar are intact.

SUMMARY

The conditions of the site are summarized as follows:

- Good with respect to the foundation walls from the interior of the basement;
- Good with respect to the cementitious parge on the exterior of the foundation;
- Historically inappropriate with respect to the concrete masonry unit and cementitious parge foundation;
- Fair with respect to the masonry safe foundation in the basement;
- Good with respect to the historic integrity of the Cumberland Nail and Iron Company stabilization at the safe foundation in the basement;
- Good with respect to the exterior masonry on the north façade fireplace chimney;
- Good with respect to the chimney on the east façade;
- Poor with respect to the structural functionality of the pilasters.

FRAMING

FLOOR, WALL AND ROOF FRAMING

The joists under the south section are 6 3/4" by 3", at 20" on center. What was originally the north sill under the First Build, and is now a beam spanning the east-west width of the basement, is 6" high by 6 1/2" wide (figure 68). The joists are notched to bear on sills; the sills, particularly on the west side, have undergone numerous interventions.

Under the center section, the original joists are 6 1/2" by 3 1/4", 20" on center.

The joists under the north section are 9 3/4" by 2 1/2" to 2 3/4", 16" on center. These joists are deeply notched at the bearing ends; the notches are 5" deep, more than fifty percent of the total depth of the joists. On the west side, where joists and flooring have been replaced, the joists are 9 1/2" by 1 3/4", 16" on center. These joists are also deeply notched; here, they are step notched (figure 71).

Framing visible from the basement exhibits signs of stress and deterioration (figure 69). For example, the north header at the fireplace support has failed at the east end (figure 70); the two sets of north-south double joists between the chimney on the north wall of the north section and the center historic safe base are severely deteriorated. In general, the framing has been subjected to a series of inappropriate repairs and alterations, such as sistering of joists with pieces of plywood (figure 67).

Roof rafters over the south section are 3 1/4" by 2 3/4", 2'-7" to 2'-8" on center. Shingle nailers, under the plywood sheathing, are 1" deep by 2 3/4" wide, at 7" on center (figure 63). Attic joists in this section are 7" deep, approximately 2'-0" on center; the width was not available. The joists in this section are whitewashed. In the approximate center of the south section, a hole has been cut in the attic floor for a stove flue pipe, and the rafters have been framed around an opening for a chimney

Rafters over the center section are 3 1/2" by 2 3/4", 2'-1 1/2" on center. The joists appear to be the same size as those in the south section; in the center section, the joists are not whitewashed.

Rafters over the north section are 4" by 2 1/2" to 3", 24" on center. The attic floor joists in this section are 5 1/2" deep; the width was not available.

Wall studs and posts were not accessible for observation, but a sliver of the southwest post visible behind a loose cornerboard exhibits powderpost beetle holes, and the buckling of the weatherboard siding on the east side in the vicinity of the chimney is an indication of deteriorating and compressing framing (figure 50).

SUMMARY

The conditions of the wood framing are summarized as follows:

- Fair to poor with respect to condition of first floor framing visible in the basement;
- Good with respect to the condition of the roof framing;
- Indeterminate with respect to the condition of the attic floor framing;
- Indeterminate but suspect with respect to the condition of the wall framing.

ROOFING AND MOISTURE PROTECTION

In both the north and south sections, the tan-colored composition shingle roof is installed on plywood sheathing (figures 63 and 64). The sheathing is installed over the nailers that once supported wood shingles. There is no sign of roof deterioration or leaking.

The Cumberland Nail and Iron Company Office does not have gutters or rainwater conductors; a historic photograph of the building at the turn of the twentieth century shows that the building did have gutters and rainwater conductors at that time (figure 32).

SUMMARY

The conditions of the roofing and moisture protection are summarized as follows:

- Good with respect to condition of composition shingle roof and plywood sheathing;
- Historically inappropriate with respect to the composition shingle roofing and plywood sheathing;
- Historically inappropriate with respect to lack of gutters and rainwater conductors;
- Potentially damaging to the building with respect to lack of gutters and rainwater conductors.

EXTERIOR WOOD CLADDING AND TRIM

The exterior cladding is wood weatherboards on wood studs. The weatherboards on the south section are beaded; those on the north section are not. The weatherboards in the First Build portion of the south section have 5" exposure; those in the center Second Build section have exposures varying from 7 1/2" at the bottom of the wall to 4" at the top. The unbeaded weatherboards on the Third Build north section have 4" exposure. A few

weatherboards at the bottom of the east and south walls have been replaced with unbeaded boards. A section of weatherboards has been replaced in the northwest corner of the north section, from the bottom of the wall to approximately midway up; this relates to an area of floor replacement in the interior, and may be the result of fire or extensive water damage.

The weatherboards, particularly those on the south section, are gouged and roughened from mechanical paint removal (figure 45). Some boards are split, cracked, or missing small pieces (figure 49). One board on the south side of the north section east end is loose at one end.

Wood trim consists of the crown-molding cornice, and window and door casings. The historic cyma-recta crown molding is extant on the south end of the south section, but has been removed and replaced with a plain box cornice on the east and west elevations; the crown molding survives on the north section. Door and window casings are plain, without beads or moldings.

Historic photographs show decorative hoods over all the first floor windows. These hoods have been removed, and at least some of them were found lying on the basement floor (figure 53); the hoods were not inventoried.

SUMMARY

The conditions of the exterior cladding and wood trim are summarized as follows:

- Fair to poor with respect to the weatherboards;
- Good with respect to the cornice crown molding where extant;
- Historically inappropriate with respect to the box cornice where replacing the cornice crown molding;
- Generally good with respect to window and door casings;
- Historically inappropriate with respect to the missing window hoods.

EXTERIOR FINISHES

The current paint scheme has the wood cladding and trim painted a light tan color, with dark green shutters. Historic paint analysis has not been performed; however, a photograph taken at the turn of the twentieth century shows the trim as a light color, the wood cladding as a medium light color, and the shutters as a dark color.

No peeling was observed on the exterior paint. Previous paint removal has raised fibers on the weatherboards, resulting in a coating that is rough in areas (figure 45). The doors and shutters have been painted over partial previous coatings that were not feathered, resulting in an uneven top coat. Some windows have extensive paint on the glass (figure 43).

Based on the age of the building and known timeframe of past work, there is a strong possibility that some of the exterior paint contains lead. Historic paint from the nineteenth century almost certainly would contain lead. Although the identification of lead paint is beyond the scope of this report, an independent testing laboratory or paint conservator could readily determine whether lead is present in the paint.

SUMMARY

The conditions of the coatings on the exterior are summarized as follows:

- Generally good condition with respect to coatings on wood cladding and trim;
- Fair condition on doors and shutters;
- Poor application on windows;
- Indeterminate with respect to the presence of lead.

WINDOWS, DOORS, AND SHUTTERS

WINDOWS

The windows in the south and center sections are six-over-six, with fixed upper sash and sliding lower sash held in place by spring catch locks. Spring catch locks are designed to hold the lower sash open by means of notches in the side of the sash; when closed, the spring catch lock prevents the lower sash from being raised. The south window has a modern sash lock in addition to the spring catch lock. The windows are painted shut and inoperable.

The six-over-six windows in the north section were intended to be double-hung, with cords and weights running over pulleys in the jambs. However, cords are missing, and the windows are painted shut and inoperable.

The three windows in the attic have fixed upper sash and sliding lower sash.

Putty in the windows generally was observed to be intact, but of poor quality workmanship. Some windows are lacking in putty. Glass is intact, except for a couple of cracked panes.

All windows were once protected by exterior rigid plastic storm windows; the plastic is set into moldings nailed to the building. The plastic is now missing from some windows.

DOORS

The six-panel entrance door on the west façade appears to be original (figure 77). The door has sagged over time, and a tapered piece has been added to the top edge and the bottom edge has been trimmed to accommodate the sag. A modern mail slot has been cut into the latch rail. One of the lower panels is split, and paint is peeling around the split. The door has butt hinges, and a large box lock with brass knobs. The lock is intact, but not operable. A modern chain has been installed on the interior. The center stile exhibits numerous nail and tack holes remaining from notices that were once posted on the door, presumably when it was operating as the Cumberland Nail and Iron Company office.

The six-panel door on the east façade is fixed in place, and is covered over with modern finishes on the interior (figure 76). The panels are flush with the rails and stiles, and have no moldings; the door may be installed inside out. There appear to be the remains of a door knob and escutcheon on the exterior; no other hardware is accessible for observation. The ends of the panels appear to be splitting.

SHUTTERS

Shutters are extant on all the first floor windows, with the exception of one missing shutter on the center section of the east façade; the missing shutter is probably the one stored in the basement (figure 54). All the shutters are screwed to the building rather than being hung on hinges, though most have hinges intact. Some of the shutters have damaged members.

The shutter dogs on the south section are hand forged (figure 46); the shutter dogs on the center and north section are cast iron. The shutter dogs on the center-section windows have a flower motif (figure 47); the majority of the shutter dogs on the north section have a scroll motif (figure 48). The hinges, shutter dogs, rings, bolts and pintels are generally intact, though some elements are missing, including some of the sliding bars in the bolts. The bolts appear to be inoperable from being painted in place.

SUMMARY

The conditions of the windows are summarized as follows:

- Good condition with respect to historical integrity;
- Fair to poor with respect to general condition of the six-over-six sash and casings on the south and center sections;
- Fair to poor with respect to general condition of the six-over-six sash and casings on the north section;
- Poor with respect to operability of all sash;
- Good with respect to existence of historic hardware;
- Fair with respect to condition of historic hardware.

The conditions of the exterior doors are summarized as follows:

- Good with respect to historic integrity of doors;

- Fair with respect to condition of exterior doors;
- Good with respect to historic integrity of hardware on west door;
- Indeterminate with respect to historic integrity of hardware on east door;
- Good with respect to operability of west door;
- Non-existent with respect to operability of east door.

The conditions of the shutters are summarized as follows:

- Good with respect to historic integrity of shutters;
- Fair to poor with respect to condition of shutters;
- Fair with respect to historic integrity of hardware on shutters;
- Fair with respect to condition of hardware on shutters;
- Poor with respect to operability of hardware on shutters;
- Inappropriate and potentially damaging with respect to installation of shutters by screwing to building.

BARRIER-FREE ACCESSIBILITY

The accessibility of the Cumberland Nail and Iron Company Office was reviewed for general conformance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

The west entrance is accessible from the public sidewalk on Mayor Aitken Drive by means of a brick sidewalk with little or no slope that meets the entrance at close to floor level. The door sill and threshold together are approximately 2 1/2" above the level of the sidewalk (figure 77). The historic doorway is 33" wide; with the encroachment of the door when opened 90°, the accessible entrance is just a fraction of an inch short of the 32" width in the ADAAG guidelines.

The interior exhibit space is one large room and is fully barrier-free accessible. The restroom door is 37" wide, and the overall dimensions of the room are 7'-9" by 4'-11 3/4", which are close to ADAAG guidelines of 5'-0" by 8'-0". However, the fixtures are not arranged according to the guidelines, there are no grab bars, and a heating duct rises through the middle of the room, precluding barrier-free access.

SUMMARY

The condition of the Cumberland Nail and Iron Company Office with regard to meeting ADAAG requirements is considered:

- Adequate with respect to the path of travel from the public sidewalk to the entrance on the west side;
- Non-complying with respect to the height of the sill and threshold at the west entrance;
- Adequate with respect to circulation throughout the exhibit space;
- Adequate with respect to the entrance width to the restroom;
- Non-complying with respect to the interior of the restroom.

INTERIOR SPACES

The interior of the Cumberland Nail and Iron Company Office is now one large room (figures 55, 56, and 57), with a restroom partitioned off the southeast corner of the south section. At one time, there were at least two rooms, with the south and center section separated from the north section by a built-in safe; there may also have been a partition between the south and center sections, though this is unlikely. The north section was reached from the center section by means of a doorway to the east of the fireplace. The division of the space into three construction builds, and the location of the safe, are discernible from the pattern of floorboards. The partition for the restroom is c 1970.

The floors show no signs of deterioration; in the north section, a large section of flooring in the northwest quadrant has been replaced. The replacement floorboards in the south section, which are believed to date to 1910, are 3 1/2" wide. In the center section, the original floorboards are random width and vary from 3 3/8" to 4 1/2" wide. In the

north section, the original floorboards are 5 1/2" wide and the replacement boards in the northwest corner are 3 1/4" wide. The floorboards have been coated with what appears to be polyurethane.

The walls of all three sections, and the ceiling of the north section, are plastered; the ceiling of the south and center sections is gypsum wallboard, and was installed in the early twenty-first century (figure 55). Where visible, the plaster appears to be intact, with only minor cracks; a large percentage of the wall area is covered with exhibit cases.

Window and door casings have simple backmolds. Baseboards, where visible, feature simple top moldings. The door casing at the restroom door has no molding. No sign of deterioration was seen in the wood trim.

The brick fireplace with federal-style mantle that dates to 1944 shows no signs of deterioration (figure 58).

The restroom in the southeast corner has a vinyl floor covering, and walls and ceiling clad with plastic laminate. The heating duct that rises through the room from the basement to the attic is covered with plywood.

The attic, which originally was accessible by means of a stair in the southwest corner of the south section, where the hatch now is, was occupied space, though probably used primarily for storage (figures 63 and 65). The south section originally had brick nogging between the studs in the gable ends, with a beaded baseboard at the base of the wall; the nogging was whitewashed. The entire attic is floored.

The clock is probably the most significant feature of the interior (figures 59 and 60), as well as the exterior (figure 44). The mechanism of the clock is currently believed to be inoperable; an analysis of the clock mechanism is beyond the scope of this report. The case of the clock on the interior was intended to imitate a tall case clock, and until well into the second half of the twentieth century, retained its historic natural finish (figure 78). The clock case has since been painted to match the wood trim in the rest of the interior (figure 59). The exterior face of the clock was intended to be accessible by means of a glazed door, hinged at the top and secured with a turn catch at the bottom; the exterior door is painted shut and is not operable.

The wood, plaster and gypsum board surfaces are painted throughout the house. Paint is generally in good condition. Paint layers from prior to 1970 are likely to contain lead.

The conditions of the interior are summarized as follows:

- Good with respect to condition of the floors;
- Historically inappropriate with respect to the polyurethane coating;
- Fair to good with respect to the condition of the plaster walls and ceiling;
- Good with respect to the condition of the gypsum wallboard ceiling;
- Historically inappropriate with respect to the gypsum wallboard ceiling;
- Good with respect to the coatings on the plaster, gypsum wallboard and wood trim
- Indeterminate with respect to the presence of lead in paint;
- Good with respect to the condition of the brick fireplace and federal-style mantel;
- Fair with respect to the condition of the finishes in the restroom;
- Good with respect to the integrity of the historic fabric in the attic;
- Poor with respect to the operability of the clock;
- Historically inappropriate with respect to the painted finish on the interior clock case;
- Apparently inoperable with respect to door allowing access to the exterior face.

BUILDING SYSTEMS

HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS

Heat is provided by an oil-fired, up-flow warm-air Olsen furnace (figure 72). The filter has not been cleaned or changed, and it appears the furnace is not being maintained. The flue pipe for the furnace is perforated.

Supply air is distributed through grilles in the ceiling of the first floor; a large vertical supply duct rises to the attic through the restroom. Ducts in the attic were once insulated, but the insulation has been destroyed, probably by vermin.

Return air circulates through registers in the baseboards; return air is ducted through a main sheet-metal duct in the basement, but return ducts from the baseboard registers run between the wood joists, exposing the wood to high levels of moisture.

There is no code-compliant combustion air supply in the basement. The basement is ventilated by two 8" by 16" air vents, which are constantly open, excluding the possibility of moisture control.

Hot water is supplied to the restroom by a six gallon, 1500 watt, electric water heater in the basement. The heater is of recent vintage.

The mechanical system of the office is considered to be in:

- Adequate condition regarding the age and model of the furnace;
- Poor condition regarding the apparent lack of maintenance on the furnace;
- Good condition regarding the supply air distribution ducts;
- Poor condition regarding the destruction of the insulation on the attic ducts;
- Inappropriate condition regarding the location of the vertical supply duct in the restroom;
- Inappropriate condition regarding the use of wood joists in the return air lines;
- Good condition regarding the hot water supply;
- Indeterminate condition regarding the municipal water supply;
- Indeterminate condition regarding the municipal sewer service.

PLUMBING SYSTEM

The plumbing system at the Cumberland Nail and Iron Office consists of:

- A restroom in the southeast corner of the first floor with toilet and lavatory;
- Assumed connection to municipal sewer, exiting the basement through the south end of the west wall (figure 73);
- Assumed connection to municipal water, entering the basement through the south end of the west wall;
- A hose bibb on the south exterior foundation wall.

The sewer pipe is not well supported in the basement. There is heavy corrosion at the west basement wall penetrations for both the sewer and water supply pipes (figure 75).

The plumbing system is considered to be:

- Fair condition with respect to the restroom;
- Poor condition with regard to the corrosion of the water and sewer pipes where they enter the west basement wall;
- Fair condition with regard to the lack of support for the sewer piping in the basement;
- Historically inappropriate with respect to the location of the restroom.

ELECTRICAL SYSTEM

Power is provided by overhead service from utility pole 250 CP located to the southwest on Mayor Aitken Drive.

Electrical service is 100 Ampere, single phase, entering the building at the south end. The electrical panel box is located on the south wall of the basement, near the ceiling; it is too high to be accessible without a ladder (figure 72). The cover is missing from the panel box. Electrical wiring is non-metallic sheathed (NMS).

Lighting in the main room consists of three downlights in the ceiling of the south and center section, with two more holes cut where lights have not been installed; three aimable floodlights in the ceiling of the north section, and, also in the north section, two chandeliers with candle lamps (figures 55 and 56).

The electrical system is considered to be:

- Adequate in regard to amperage for the present requirements of the non-air conditioned building;
- Poor in regard to the lack of cover and inconvenient location of the electrical panel box;
- Poor in regard to the non-metallic sheathed wiring
- Historically inappropriate with respect to the lighting, both downlights and chandeliers.

FIRE DETECTION AND PROTECTION

There are no fire detection or protection systems in the Cumberland Nail and Iron Company Office.

The basement is used for storage of a variety of materials, including items from the collection of the former Bridgeton Antiquarian League.

The Cumberland Nail and Iron Company Office is served by the Bridgeton Fire Department, about a quarter of a mile east on Orange Street, off of Commerce Street; the fire department is a combination professional and volunteer department. Response time of the Fire Department was not checked. Fire apparatus access to the site is good. The nearest municipal fire hydrant is located on the southeast corner of the Mayor Aitken Drive and Commerce Street intersection, about 400 feet to the south.

The fire detection and fire protection systems at the Cumberland Nail and Iron Company Office are considered to be:

- Good with respect to proximity to fire department services;
- Inadequate with respect to separation of potential combustibles and ignition sources from the historic building and collections, particularly with respect to basement storage;
- Non-existent with respect to fire detection;
- Non-existent with respect to fire suppression;
- Indeterminate with respect to fire department response time.

SECURITY AND INTRUSION DETECTION

Cumberland Nail and Iron Company Office is protected from intrusion through an alarm system consisting of a contact on the entrance door, a contact on the basement bulkhead door, and two motion detectors in the main first floor space. The alarm panel is located on the partition of the restroom.

The intrusion detection system reports to the Bridgeton Police Station, and sounds a local alarm on the exterior of the building.

Security and intrusion detection systems at the Cumberland Nail and Iron Company Office are considered to be:

- Indeterminate with respect to functionality;
- Indeterminate with respect to notification and police response time.

TELECOMMUNICATIONS

There is a telephone line entering the building at the southeast corner. The telephone line appears to serve the intrusion alarm system, relaying the alarm to the police department.

End of Analysis of Existing Conditions

RECOMMENDATIONS

INTRODUCTION

The three preceding sections have summarized the background, documented history, significance, chronology and existing conditions of the Cumberland Nail and Iron Company Office. This section, **Recommendations**, provides recommended strategies for preservation, restoration, or rehabilitation of the building components and systems, as appropriate.

The recommendations are derived from review of the concerns, issues and needs of the City of Bridgeton, interested citizens, as well as of the Cumberland Nail and Iron Company Office's documented history, the extant architectural fabric, and the existing conditions encountered. The resultant recommendations are intended to satisfy the objectives for a *Preservation Plan* that:

- Provides good stewardship of the Cumberland Nail and Iron Company Office as a historic resource;
- Conforms with sound preservation practice and principles;
- Can be implemented through logical phasing.

PRESERVATION/RESTORATION/REHABILITATION PHILOSOPHY & GUIDELINES

The objectives for preservation of a historic resource should be consistent with the architectural, historical, and cultural significance of the resource. The **Background and Historical Analysis** concludes that the Cumberland Nail and Iron Company Office possesses:

- Historic significance for being the primary surviving remnant of the Cumberland Nail and Iron Company, the major Bridgeton industry in the early nineteenth century, and an important industry in the state throughout that century;
- Cultural significance for its preservation by the City of Bridgeton at the time of the formation of the Bridgeton City Park, following the dissolution of the Cumberland Nail and Iron Company at the turn of the twentieth century;
- Cultural significance for the role it has played over the past century in the community as a meeting space for the Tumbling Dam Park Commission in the first third of the twentieth century, and later as a venue for art exhibits and meetings by organizations such as the Civic Club and Junior Civic Club, and as the headquarters and museum of the Bridgeton Antiquarian League.

In the United States, the widely accepted bases for stewardship of historic properties are the Secretary of the Interior's *Standards for the Treatment of Historic Properties, 1995*. Conformance with the *Standards* is a criterion for most sources of public or private funds for preservation or rehabilitation of a historic property.

The Secretary of the Interior's *Standards for the Treatment of Historic Properties, 1995*, (Appendix A) include:

- *Standards for Preservation*, which apply to singularly important structures or features which retain significant form, integrity, and materials, and will be interpreted in their historic context;
- *Standards for Rehabilitation*, which apply to less critical work, such as adaptation of an undistinguished or already altered component to a new use, or possibly for a secondary space within a significant resource;
- *Standards for Restoration*, which apply to important structures or features which have lost form, integrity, or materials through alterations and are to be depicted as they appeared at a particular period of time through the removal of later features and the reconstruction of missing features from the restoration period;
- *Standards for Reconstruction*, which apply when it is necessary to create a contemporary depiction of a missing building to understand and interpret a property's historic value.

Guidelines for applying the standards can be found at the National Park Service website <http://www.nps.gov/history/hps/tps/standguide/>.

The *Standards* reflect the governing objective that any action to be taken on the building or site should conserve and preserve the extant historic fabric to the greatest extent possible and should provide accurate interpretation to the public. The tendency to make surfaces and finishes "good as new" should be recognized as incompatible with the objective for preservation, as is conjectural reconstruction, even when such sentiments are well intended.

Furthermore, measures for environmental improvements to conserve the existing structure and collections should be in conformance with the *New Orleans Charter for the Joint Preservation of Historic Structures and Artifacts* (Appendix H), adopted by the American Institute of Historic and Artistic Works (AIC) and the Association for Preservation Technology International (APTI).

The recommendations contained in this Preservation Plan have been developed with the intention of satisfying the Secretary of the Interior's *Standards for the Treatment of Historic Properties, 1995*. Implementation of the recommendations should be performed with the guidance and involvement of an experienced historic preservation professional. Work on the building should be performed by contractors and craftsmen with demonstrated successful experience in historic preservation projects; qualification requirements will vary depending on the type and scope of work to be performed. So that expectations of craft and workmanship are clearly established, "mock-ups" should be utilized to demonstrate proper construction means and methods, and the acceptable quality of the constructed work. Implementation of the recommendations should be well documented during design and construction. When historic fabric must be replaced, removals should be documented, and samples should be catalogued and retained.

Over the long term, a preservation professional should periodically review the recommendations of this *Preservation Plan* against any historical documentation or physical evidence that may come to light and subsequently improve the understanding of the history of the Cumberland Nail and Iron Company Office.

PERIOD OF SIGNIFICANCE

The determination of the Period of Significance is the pivotal decision in planning for the preservation and restoration of a historic site or structure. The Period of Significance is based on a number of factors, including the cultural importance of the resource and the historical events associated with it, the architectural importance of a structure and its features, the extant architectural fabric and site context, and the availability of information which accurately documents the configuration and changes of the site and building over time. The Period of Significance may be a specific date or a range of dates.

When the history of the Cumberland Nail and Iron Company Office is viewed in the whole, the construction of the building in 1815, at the inception of the Reeves brothers' nail manufactory undertaking; its vital position as the management core of operations for almost eighty-five years; its survival after the city's acquisition of the property; and its continuous community use for over a century as part of the Bridgeton City Park, bestow on it an ongoing significance. This significance stretches from its initial construction up to the present time, over a continuum of almost two centuries. The Period of Significance for the Cumberland Nail and Iron Company Office therefore encompasses the nearly two-hundred years from 1815 until the present.

PERIOD OF INTERPRETATION

The Period of Interpretation is the time frame to which the Cumberland Nail and Iron Company Office should be preserved and interpreted. The Period of Interpretation should fall within the Period of Significance.

The objective in establishing a Period of Interpretation is to find a date, or dates, that:

- Results in a minimum disturbance and maximum retention of extant historic fabric;
- Can be substantiated by historical or physical evidence in terms of details to be preserved, reconstructed, or restored;
- Avoids conjectural restoration or reconstruction;
- Results in a historic resource that permits accurate public interpretation with respect to its cultural and historic significance.

The objectives in establishing the Period of Interpretation must be carefully weighed against the existing building, its condition, and the historical and physical evidence.

The building evolved through its use by the Cumberland Nail and Iron Company and the City of Bridgeton until 1944, when the city removed interior and exterior fabric dating from the Cumberland Nail period (including two chimneys) and constructed the extant fireplace and chimney. No substantial changes have been made since, with the exception of the addition of exhibit cases and a small restroom installed by the Bridgeton Antiquarian League in the 1970s; though a manifestation of the community use of the building, these features have minor significance, and, especially in the case of the restroom, are an obstacle to the interpretation of more important aspects of the building's story. Therefore, the recommended Period of Interpretation is:

- 1944, following the major alterations undertaken by the City of Bridgeton.

APPLICATION OF THE STANDARDS

The exterior of the building is relatively intact from its appearance in 1944, except for the removal window hoods; at least some of these hoods are stored in the basement, and could easily be reinstalled. The historic fabric on the interior also remains essentially intact from its configuration in 1944; changes since then have consisted primarily of additions (exhibit cases and restroom) rather than removals.

Recommendations for application of the *Standards* for the Cumberland Nail and Iron Company are as follows:

- The *Standards for Restoration* should be applied to the interior and exterior.

According to these standards, extant historic fabric should be preserved, including any surviving historic finishes, and missing or severely damaged features, the existence of which can be documented, should be replaced.

COLLECTIONS ASSESSMENT

The collection of the Bridgeton Antiquarian League relevant to the Cumberland Nail and Iron Company, now in the possession of the City of Bridgeton, comprises a rare and valuable legacy from Bridgeton's nineteenth-century industrial past. The utmost care should be afforded this collection, and its conservation, storage and interpretation should be placed in the hands of a professional collections conservator. Well-intended but uninformed actions to clean or otherwise conserve the artifacts are likely to cause irreparable damage.

PROPOSED APPROACH FOR THE CUMBERLAND NAIL AND IRON COMPANY OFFICE

DEVELOPMENT

As part of the preparation of this Preservation Plan, a collaborative workshop was held on 12 May 2011. The purpose of the workshops was to:

- Review the stakeholders' goals and objectives for the Cumberland Nail Office;
- Develop conceptual strategies to achieve those goals and objectives.

The workshop participants included representatives of the City of Bridgeton, the New Jersey Historic Trust, and interested citizens. The workshop was facilitated by the consulting team for the Preservation Plan. (The outcomes and key points of the workshops are recounted in Appendix D.) The goals and objectives developed in the workshop determined the recommendations in this Preservation Plan.

GUIDING VISION

According to a consensus reached at the conclusion of the workshop, the Cumberland Nail Office will be open and interpreted to the public and used to tell the story of the City of Bridgeton's nineteenth-century industrial prominence. The building may also be used to hold public meetings, such as for the Bridgeton Historic District Commission, as a secondary function.

The building, though physically restored to the 1944 Period of Interpretation, will interpret the history of the Cumberland Nail and Iron Company and Bridgeton's industrial heritage, as well as the history of the City of Bridgeton's acquisition of the Cumberland Nail and Iron Company's extensive property holdings in 1903 and the subsequent history of the Bridgeton City Park. Ideally, the Cumberland Nail Office will serve as a tourist destination and hub for a Bridgeton history trail that might also include the original Cumberland Bank (now the

Bridgeton Free Public Library), the Ferracute, and an adaptively-reused Bridgeton City Hall, as well as historic homes and shops. The adjacent parking, park-like location, proximity to other historic and recreational buildings in the park (Waterworks, Dame's School, Canoe House), and nearby public restroom facilities (450 feet away) make it an excellent gateway both for the park and for a wider exploration of historic Bridgeton.

However, the building's comparatively isolated location and numerous windows make it vulnerable to forced entry and/or arson. The building's small size and large envelope-to-volume ratio will make it difficult and operationally expensive to maintain close control of relative humidity. Both risk factors, security and environment, preclude use of the building to exhibit or store high value or environmentally sensitive collections. Therefore, exhibitions should be limited to reproductions of high value or environmentally sensitive objects, documents and artifacts. Exhibit of low-value originals, of which many copies are known to survive, would also be acceptable.

Two potential paths forward were identified. The City of Bridgeton is pursuing plans to launch an initiative that will make the Cohansey west bank a tourist destination, concentrating on adaptive reuse of the Waterworks building and encompassing the Raceway and Canoe House, and the Cumberland Nail Office and Dame's School.

Specifically regarding the Cumberland Nail Office, two options were presented:

- The city could remain as the sole steward and operator of the interpreted building;
- The city could partner with a strong non-profit that would assist in caring for the building and collection, and would shoulder the responsibility for operating it and keeping it open for interpretation.

Several potential non-profit partners were discussed. Chief among them were:

- A reconstituted Bridgeton Antiquarian League;
- Bridgeton Main Street;
- Cumberland County Historical Society;
- Center for Historic American Building Arts (CHABA), a new non-profit in Bridgeton with a mission to make Bridgeton a preservation study area and to provide training in preservation skills;
- Development of a Bridgeton Park Commission based on the Fairmount Park Commission in Philadelphia, a separate autonomous entity within the city but not of it, which could incur debt and create a revenue stream.

USE & ALLOCATION OF SPACES, INCLUDING BARRIER-FREE ACCESS

Consistent with the Guiding Vision developed at the Workshop, a proposed reallocation of use and space has been developed:

- The main first floor space will be restored, including:
 - Elimination of the restroom;
 - Reopening of the east door that originally provided access to the factory operation;
 - Restoration of the clock;
 - Removal as deemed appropriate of cabinets and exhibit cases.
- The basement will be repurposed as needed for mechanical use, or storage of robust artifacts that do not require special environmental conditions. The basement is a potential location for a barrier-free restroom.

BARRIER-FREE ACCESSIBILITY

Barrier-free access to the first floor is possible at present, and requires only minor adjustment of the threshold height to be fully code-compliant. Since the extant restroom is being eliminated, the issue of a non-accessible restroom is a moot point.

The Americans with Disabilities Act allows exemptions for a historic building eligible for national, state, or local register listing, in areas where full compliance with the guidelines would threaten or destroy the historic significance of the building or features of the building. If these exemptions are not enough to negate the threat to or destruction of historically-significant features, then there is a possibility of further exemption from the requirements. The State Historic Preservation Officer is charged with making the determination as to what will threaten or endanger historic significance.

In addition to the federal Americans with Disabilities Act, the New Jersey Uniform Construction Code, Barrier-Free Subcode, requires compliance with ANSI A117.1-2003 in alterations or new construction.

Convenient permanent barrier-free access could be provided by construction of:

- A dedicated barrier-free parking space in the parking lot owned by the city and leased to the Salvation Army;
- A barrier-free path of travel with a stabilized surface from the parking space to the front (west) door.

LIFE SAFETY, BUILDING CODE AND COMPLIANCE WITH THE NJ REGISTER OF HISTORIC PLACES ACT OF 1970

As an existing building, the Cumberland Nail Office is subject to compliance with the New Jersey Rehabilitation Subcode (New Jersey Administrative Code, Title 5 Chapter 23 Subchapter 6). In New Jersey, the requirement for conformance with the Rehabilitation Subcode is triggered by the following:

- Change in use, particularly change to a higher risk use;
- Repairs, renovations and alterations, also called “Rehabilitation;”
- Replacement or overhaul of mechanical, electrical or plumbing systems.

The Rehabilitation Code provides exceptions for Historic Buildings under 5:23 6.33. Because it is certified as a contributing building in the Bridgeton Historic District, the building is eligible for exceptions to the code under 5:23 – 6.33 Historic Buildings.

With respect to historic buildings, the code specifically states:

- Exterior walls are not required to be modified to meet requirements for fire-resistive wall construction;
- The roof covering may be replaced with the same materials as the preexisting materials, or restored to original materials;
- Exit doors need not swing in the direction of exit travel if the occupancy is fifty people or fewer;
- Historic interior finishes and replacements are acceptable in corridor walls and ceilings.

The Rehabilitation Code categorizes museums in small historic buildings, such as house museums, as a Business Use (Group B).

Because the building is on the New Jersey Register of Historic Places through its location in the Bridgeton Historic District, and because it is owned by a public entity, all construction work on the building is subject to review by the New Jersey Historic Preservation Office. An Application for Project Authorization must be submitted before work begins, and cannot proceed until approval is received. Work which is deemed an encroachment on the historic integrity of the building will be reviewed by the New Jersey Historic Sites Council at its quarterly meeting.

RESTROOM FACILITIES

Restoration of the Cumberland Nail Office interior will result in the removal of the non-barrier-free restroom in the southeast corner. There is a public restroom, owned and maintained by the city, located approximately 450 feet away. The consensus at the Workshop was that the public visiting the Cumberland Nail Office be advised to use these nearby restrooms, rather than compromise the historic integrity of the office space by introducing an intrusive barrier-free restroom in the first floor space.

If, at some point in the future it becomes imperative to include a restroom within the building, the recommended location is in the basement. The restroom could be made accessible by reworking the current bulkhead entrance to open at grade on the east side.

TECHNICAL RECOMMENDATIONS: EXTERIOR

SITE

The site is the source of much of the moisture that leads to deterioration of the Cumberland Nail Office. Removing or significantly reducing the site sources of moisture is a priority in stabilizing and restoring the building.

The site drains from the sidewalk at the road toward the building, which contributes to high moisture content on the west side and ultimately is responsible for deterioration of first-floor framing. This is compounded by the fact that there are no gutters or rainwater conductors on the building, and the roof on the west side drains onto the ground and back toward the building.

The site should be gently regraded so that a slight swale, running north-south, separates the building from the sidewalk. In addition, foundation drainage should be installed across the west elevation, and discharge to daylight. As part of the design for the foundation drainage, the ground immediately around the office should be regraded to provide positive slope away from the building. Construction of a brick water splash at the building perimeter would help guard against soil erosion from roof runoff that will eventually reverse the slope of the grading. Archaeological monitoring will be required during excavation for such work.

The four sycamore trees in the immediate vicinity of the building, planted by the Cumberland Nail & Iron Company, are significant features in the context of the office and should be treated with care. The dead trunk should be removed, and the live trees should be surveyed and cared for by a certified arborist. The strategy for pruning should take into consideration the significance of the building and the necessity of protecting it from falling branches.

The foundation plantings of yews are not historically appropriate for the 1944 Period of Interpretation; there were no foundation plantings as late as 1973 (see figure 38). In addition, the yews inhibit air circulation at the base of the building and retard the evaporation of moisture. For these reasons, removal of the yews is recommended. A historically-appropriate substitute, which would provide a seasonal display, would be a border of tulips and daffodils, which were planted in the thousands at the park entrance by the city in the early twentieth century.

FOUNDATION, CELLAR AND CHIMNEYS

The concrete masonry unit foundation with cementitious parge is generally in sound condition and requires no work at present. The foundation is not historically accurate, since until the second half of the twentieth century the foundation was Jersey conglomerate sandstone. Replacement of the present foundation with a concrete masonry unit foundation with a sandstone veneer above grade is economically unfeasible for the foreseeable future, though it would be the recommended treatment if funds were available.

The concrete masonry pilasters in the cellar are not keyed into the exterior wall and are not functioning as structural reinforcement. The pilasters need to be keyed into the wall either by reconstruction or other means. The design for the remediation must be prepared by a structural engineer.

The masonry of the chimney at the north end should be cleaned of vegetative growth. The fireplace should not be used, as the risk of fire damage to the historic building outweighs the benefit of using the fireplace. Therefore, the chimney should be capped to prohibit both the entrance of moisture and the loss of heat.

When the furnace is replaced with a gas-fired furnace, the chimney on the east elevation should be removed. It post-dates the Period of Interpretation. The weatherboards and eaves that were cut to allow the construction of the chimney will require patching and repair when it is removed.

When it becomes necessary to repoint the chimneys, the mortar mix for both should be formulated to match the existing historic mortars in color, texture and detailing. Preparation of the joint for repointing is important; the cracked, hard or unsound mortar should be carefully removed (minimum depth 1.0 to 1.5 times the joint width) without damaging the adjoining masonry. Repointing mortar should be damp cured to prevent shrinkage cracking or loss of bond with the masonry. Specific requirements may be established by the specifications; mock-ups and periodic observation will improve the end result.

WOOD FRAMING

The insect damage in the first floor framing, indicated by the presence of powderpost beetle holes in the post in the southwest corner, should be examined by a pest and termite expert to determine if the damage is from an active or past infestation. If active, extermination measures should be undertaken.

The inadequate plywood sistering on the first floor joists should be removed and adequate, engineered sisters or steel reinforcement installed. Likewise, other deteriorated members, such as the north header at the fireplace and the two sets of north-south double joists between the chimney on the north wall of the north section and the historic safe base should be reinforced according to an engineered design.

The condition of the sill on the east side of the First Build should be investigated by removal of the lower weather boards. If deteriorated as anticipated, the sill may require replacement. When replacement is undertaken, a procedure should be developed by the historically-qualified contractor to retain the historic brick nogging resting on the sill in place and undisturbed; the nogging is an important feature of the historic fabric and should be retained intact.

The first floor ceiling joists and the roof rafters do not appear to require intervention at this time. When the roof is replaced, the upper faces of the rafters should be observed for evidence of deterioration, and repaired or reinforced if problems are found.

All structural interventions should be designed by an engineer with experience in the repair and reinforcement of historic buildings.

It is of utmost importance that the original framing members be preserved and reinforced, and not replaced. The original framing holds much information about the age and construction methods of the building, and should be preserved for the study of future generations. For example, the dating of timbers is possible through the use of dendrochronology, which involves taking sample cores and comparing the tree ring spacing with a data base of the same species within a region. When historic material is demolished, it eliminates the opportunity for such investigation in the future, including the use of technologies not yet developed.

ROOFING AND MOISTURE PROTECTION

The existing composition shingle roof appears to have many years left of useful life. When it reaches the end of its life, it should be replaced with a historically-accurate wood shingle roof. The plywood sheathing should be removed, and the wood shingle roof installed directly on the surviving wood nailers. The wood shingles should be pressure treated with fire retardant.

The building had gutters and rainwater conductors historically, and these should be restored to extend the life of the building's historic fabric. The material for the gutters and conductors should be terne-coated copper or terne-coated stainless steel. The profile for the gutters should be half-round, and the rainwater conductors should be round. A hydraulic analysis should be prepared based on the area of the roof and the anticipated rainfall intensity to determine the required capacity for the gutters and conductors. Conductors should drain to the city storm drainage system, or to daylight on the slope east of the building.

EXTERIOR WOOD CLADDING AND TRIM

Most of the wood cladding is original to the building's three construction campaigns, and is historically significant. However, it has been damaged by inappropriate paint removal methods, and is rough and gouged. The weatherboards should be numbered, removed from the building and restored under shop conditions, and reinstalled in their original locations.

The cornice crown molding is missing on the east and west elevation, and has been replaced with an inappropriate box cornice. Molding with the profile of the historic crown molding should be reproduced, and installed to replace the box cornice.

The distinctive window hoods which were located above each of the first floor windows have been removed from the exterior and some are now stored on the floor of the basement. These window hoods should be repaired as required and reinstalled; addition hoods should be fabricated to replace missing hoods. This feature was a rare concession to style on the part of the Cumberland Nail and Iron Company, and was thus a significant element on the exterior; its restoration is important.

When the restroom is removed and the east exterior door made operable, the exterior steps should be rebuilt. The steps should resemble those in the historic photo (figure 27) as much as possible, while making them compliant with current building codes.

EXTERIOR FINISHES

The paint on the weatherboards and trim has a few years of life left, and does not need to be renewed at the present time. Before the building is painted again, the exterior paint (weatherboards, wood trim, window sash, and doors) should be sampled and examined by an experienced historic paint analyst, to determine the historic colors both during the ownership of the Cumberland Iron & Nail Company, for the historic record, and during the mid-twentieth century, the Period of Interpretation. Because of the extensive removal of paint in the recent construction campaign, it will be difficult to find remnants of historic paint, but a qualified analyst should be able to determine likely locations to sample. When the building is repainted, the colors from the Period of Interpretation (1944) should be used.

The paint on the doors and shutters is experiencing some deterioration. The doors and shutters should be repainted in the near future to protect the historic fabric. After repairs (discussed below) the doors and shutters should be scraped of peeling and unadhered paint, cleaned with trisodium phosphate and repainted. The historic paint layers should not be removed at this time.

Because of the recent paint removal undertaking, it is unlikely that lead paint remains on the exterior, but before work on the building begins, as a precaution, the paint should be tested for the presence of lead. If lead is found, approved procedures for working with lead paint should be followed by the contractor.

WINDOWS, DOORS AND SHUTTERS

The windows, which date to each of the three building periods, are a significant feature and should be retained, without exception. A campaign of window restoration should be undertaken, with the windows removed from the building and restored in controlled shop conditions by a contractor experienced in working with historic windows. Existing window putty should be removed with great care, to prevent damaging historic glass. After sampling by an experienced historic paint analyst for historic colors, paint should be removed from the sash, and the wood sash repaired as required, either with dutchmen, or epoxy consolidants. Sash interiors and exteriors, including the putty, should be primed and repainted in authentic colors.

If funds allow, glass that is cracked or broken should be replaced with a restoration glass, such as Bendheim Lite™, to avoid the flat appearance of modern glass, which would be disconcerting in the historic façade.

The installation of storm windows will protect collections from air infiltration and pollutants, and will reduce operating costs. In addition, storm windows provide a first line of protection against vandalism and forced entry. Custom wood storm windows should be fabricated using laminated glass; laminated glass, with a plastic interlayer, retains its configuration and residual strength even when broken, thus protecting the historic windows from breakage. The interlayer should be composed of polyvinyl butyral to provide UV protection to the interior and collections.

When the storm windows are in place, the restored and rehung shutters will not be operable. An alternate approach would be to install spring-fit interior storm windows, and close the shutters for protection when the building is not occupied.

Windows should be made operable, and should not be painted shut. The windows in the north section, which were hung with cords and sash weights, should have the hanging system restored. However, if the collection of artifacts

and documents is returned to the building, windows should be kept closed to prevent infiltration of dust and pollution, and should not be fitted with screens; in this eventuality, the sash should be fitted with bronze weatherstripping to seal the openings from air and pollutant infiltration.

When the restroom is removed, the exterior door on the east elevation should be restored and made operable again. If hardware is missing, replacement hardware should be comparable to that on the west door. The west door should also be restored, but care should be taken to preserve the tack holes in the center stile, which appear to be evidence of the Cumberland Nail Company's practice of posting notices on the office door. Both doors should be fitted with weatherstripping to protect the interior and the collections from pollution.

The building had shutters on all first story windows in the mid-twentieth century. All shutters have survived, with one from the east elevation currently being stored in the basement.

Shutters are particularly vulnerable, being fairly fragile items to begin with, combined with their exposure to weather conditions on all sides. Shutters therefore generally need repair and paint about twice as often as weatherboards and trim. The shutters on the Cumberland Nail Office should be removed from the building, and repaired and painted under shop conditions. The hardware should be removed and rehabilitated; replacements for missing hardware should be fabricated, based on the surviving historic hardware. Shutters should then be rehung using appropriate original or reproduction shutter hanging hardware. Shutters should not be screwed to the building, as they currently are; this means of attachment is historically inappropriate and shortens the life expectancy of the shutters by holding them against the building and allowing wet leaves and debris to accumulate behind them. If the shutters are hung on as they were originally, and interior storm windows are substituted for the current exterior storms, the shutters could be closed for security, as they originally were meant to be, when the building is closed.

TECHNICAL RECOMMENDATIONS: INTERIOR

GENERAL

The consensus of the May 2011 workshop was that the Cumberland Nail Office should be used to interpret Bridgeton's nineteenth-century industrial history, and be the visitor hub for a network of other points of historic interest around the city. While the building itself, inside and out, should be restored to its appearance in 1944, the story of the eighty-five-year history of the Cumberland Nail and Iron Office, the broader nineteenth-century history of industry in Bridgeton, and the city's forward-thinking purchase of the property for a city park in 1903 could all be told through exhibits.

To interpret in part the manner in which the building functioned when in use as an office, it will be important to remove the restroom and open the door on the east side, originally the door that communicated with the main factory building along the Cohansey River. The cabinets and platform (in the northeast corner) appear to post date the Period of Interpretation, and can be removed without jeopardizing historic fabric; it would also be possible to retain and use them, if desired.

Perhaps the most significant feature, the double faced clock, should be restored to working order, preserving as much of the historic fabric as possible. All aspects of the clock should be treated with great care, both inside and out.

WOODWORK

Except for the restroom and the cabinets and platform, the woodwork appears to be historic. This woodwork should be treated with care and respect. If it becomes necessary to remove layers of paint, it should be done by chemical means and not by sanding. Any upgrade to systems should avoid disturbing historic woodwork to the greatest extent possible.

FLOORS

The floors have been finished with polyurethane, and do not need to be refinished at this time. When the finish becomes worn in the future, care should be taken in refinishing. Existing finishes should be removed by chemical means and by hand scrapping, and, with care, hand sanding. Floors should not be sanded with mechanical sanders, as this destroys the historic surface, leaving the floors looking inappropriately new. When the floor in the restroom is uncovered, the same precautions should be taken in its care.

PLASTER

Historic plaster is in generally good condition, and should be preserved. As with the historic woodwork, disturbing historic plaster should be avoided when installing new systems, if at all possible.

Ideally, the ceiling of the first and second builds should have the gypsum board removed and be replastered, if funds become available.

PAINT

Existing interior paint is in good condition. When it is time to paint the interior woodwork, a historic paint analyst should be retained to research colors at the Period of Interpretation.

The paint on the interior clock housing should be carefully removed with chemicals, and the original natural finish restored.

BUILDING SYSTEMS

HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS

Based on the recommended use and interpretation of the building, the objectives for managing the interior environment of the building are to:

- Provide conditions for human thermal comfort when occupied during any season of the year;
- Prevent damage to the architectural fabric and finishes due to low or freezing temperatures when the building is not occupied in winter, late fall and early spring;
- Prevent condensation on interior materials and surfaces when occupied or unoccupied during late fall and early spring;
- Limit interior relative humidity to less than 65%RH year round in order to prevent germination of micro-organisms;
- Minimize energy costs needed to operate the building.

It is impractical to rehabilitate or upgrade the present heating system to meet the above objectives; therefore, the entire system should be replaced.

The replacement heating, ventilating and air conditioning system should consist of the following elements:

- Construction of a fire-resistant mechanical room enclosure in the basement for the HVAC equipment;
- Construction of combustion air venting for the mechanical room;
- High efficiency warm air furnace, gas-fired, if natural gas service is available or oil fired if natural gas is not available. If fuel oil is used, the integrity of the present tank should be verified by testing;
- High-efficiency air conditioning evaporator coil for the furnace, complete with condensate pump. High-efficiency air conditioning condenser mounted on a pad outside the building and secured against theft by a metal enclosure. The air conditioning should be “right-sized” for sensible loads, since the dehumidifiers (below) will take care of the latent loads;
- Relined chimney and new flue pipe for an oil-fired furnace. Sidewall venting is specifically not recommended for this building;
- Insulated sheet metal supply air ductwork serving floor registers (ceiling registers are not an option since removal of the restroom will eliminate the possibility of a supply air duct riser to the attic). Floor penetrations must be tightly sealed to reduce air leakage to the basement;
- Insulated sheet metal return air ducts from floor grilles. Floor penetrations must be tightly sealed to prevent infiltration of basement air into the system;

- New fresh air intake with motorized damper for full-occupancy events;
- High efficiency dehumidifier for first floor relative humidity control, UltraAire70H by ThermaStor, LLC¹, with sheet metal supply and return ductwork separate from the furnace. The dehumidifier must be equipped with a condensate pump;
- High efficiency dehumidifier for basement relative humidity control, UltraAire70H by ThermaStor, LLC². The basement dehumidifier must be equipped with a condensate pump but does not require ductwork;
- Programmable digital humidistat for the dehumidifier control and a 7 day programmable digital thermostat for the heating, air conditioning and fresh air damper control for the first floor system. The first floor dehumidifier should be controlled by a DEH3000 humidistat; the basement dehumidifier can be controlled by the humidistat in the unit. Fresh air damper should be opened for minimum fresh air flow when the building is occupied.

The system should be programmed to maintain:

- 50 to 55°F in the first floor when not occupied;
- Comfort temperatures of 74-76 °F when fully occupied in summer;
- Comfort temperatures of 68-72 °F when fully occupied in winter;
- Basement relative humidity at less than 65%RH;
- First floor relative humidity at less than 60%RH.

PLUMBING SYSTEM

Based on the consensus of the May 2011 workshop, and the recommended interpretation of the building, the late-twentieth-century restroom should be decommissioned in its entirety, and the piping and fixtures removed. The plumbing in the basement serving the restroom, including the water heater, should be removed to reduce the potential for leaks.

The water service to the building should be retained, and upgraded as necessary for use as a water supply for a limited area sprinkler system (see Fire Detection and Protection, below).

ELECTRICAL SYSTEM

The electrical system should be replaced in its entirety, and the replacement system should include new:

- Underground single phase service;
- 200 Ampere, single phase main disconnect and circuit breaker panel in the basement mechanical room;
- Grounding;
- Three-wire, grounded branch circuit wiring in EMT conduit or flexible metallic cable to lighting and convenience receptacles;
- Interior lighting in period correct fixtures on the first floor and new service lighting in the basement, following removal of extant historically-inappropriate lighting;
- Exterior lighting in period correct fixtures;
- Emergency lighting in the first floor and basement;
- Motion-activated security lighting for the exterior.

FIRE DETECTION AND PROTECTION

The building should be equipped with new fire detection and protection systems consisting of:

- Smoke detection in the first story and basement;
- Thermal detection in the attic and basement mechanical room;
- Limited area automatic fire protection sprinkler system, freeze-protected, for the entire building;
- Fire alarm control panel, centrally-monitored via hardwired and wireless communications.

SECURITY AND INTRUSION DETECTION

Night time security should be improved with motion activated exterior lighting as described under Electrical.

The building should be equipped with new security and intrusion detection system consisting of:

- Contacts on windows and doors of first floor and basement;
- Glass-break detection in first floor;

- Power-loss detection and communications loss detection;
- Security alarm control panel, centrally-monitored via hardwired and wireless communications.

TELECOMMUNICATIONS

The building should be equipped with new telecommunications consisting of:

- Underground telecommunication service line and secure entry to building;
- Wireless back-up communications service for alarm systems.

CONCEPTUAL COSTS

The conceptual costs of implementing the recommendations outlined in this Preservation Plan will vary with time and sequence of implementation and the method of execution. Construction and rehabilitation costs are very sensitive to the scope of the project, timing of the contract, and to the variety and number of specialized crafts required. Generally, it will be more efficient to perform all restoration at once rather than over a long period of time.

A conceptual budget has been developed and assumes the following:

- Prevailing wage rates for the locality;
- 20% of material and labor costs for the general contractor’s overhead and profit;
- The costs of labor plus 30% for taxes and insurance;
- Adjustments for costs of possible special materials;
- Adjustments for increased installation costs due to cutting and fitting of existing work;
- Costs for scaffolding, temporary protection, project sign, construction trailers, temporary utilities, and debris disposal.

Although conservative, the conceptual budget does not include:

- Escalation of costs during implementation;
- Soft costs other than professional design services;
- Permits and applications to governing agencies;
- Costs for collections relocation and protection during construction;
- Hazardous materials abatement;
- Furnishings, fixtures, exhibits or interpretation.

The conceptual costs were generated by Watson & Henry Associates using published construction cost data and cost information data from similar projects. Quantities were approximated based on sketches of existing arrangements. Adjustments have been made from our on-site observations of the complexity of the work as well as the condition of the historic fabric.

• Subtotal Construction	\$ 329,968.00
• Contingency @ 20%	\$ 65,994.00
• Construction total	\$ 395,962.00
• Professional Services, design & contract administration @ 15%	\$ 59,394.00
• Reimbursable expenses	\$ 5,000.00
• Professional Services total	\$ 64,394.00
• Project Concept Total	\$ 460,356.00

A Conceptual Cost Study with activities broken down according to CSI divisions is included in Appendix E.

MAINTENANCE

The restoration/rehabilitation of the Cumberland Nail and Iron Company Office will represent a sizable project and capital investment for the City of Bridgeton. The building will benefit from continuing long-term preventive conservation and maintenance, particularly for the new systems. The City of Bridgeton will have to plan operating expenses to include the preventive maintenance required for the new systems and equipment.

Ideally, routine maintenance should be performed by a skilled individual with property maintenance experience, supplemented by training in the special requirements for maintaining historic buildings. Long-term maintenance activities should be planned and performed with the same care and philosophical regard as preservation and restoration activities.

The long-term, cyclic maintenance plan should include periodic inspection and maintenance of the exterior coatings, sealants, flashing, windows, roofing, and rainwater drainage system. These elements are critical to the performance of the exterior envelope in protecting the structure from the entry of water. An essential part of a long-term maintenance plan should be an annual inspection of the structure by a preservation professional. The maintenance plan should be developed based on the systems and materials installed as part of the restoration phases.

A monthly, semi-annual and annual check list is included in Appendix J.

End of Recommendations

**Endnotes
Recommendations**

¹ http://www.ultra-aire.com/index.php?option=com_content&view=article&id=65&Itemid=5

² http://www.ultra-aire.com/index.php?option=com_content&view=article&id=65&Itemid=5

BIBLIOGRAPHY

“The Art Exhibit.” *We Women: The Women’s Magazine of Bridgeton, New Jersey*, Vol. 6, No. 11. November 1944.

Baltimore Patriot. 10 February 1824.

Bridgeton Evening News. Bridgeton, NJ. 1884 through 1922.

Bridgeton Pioneer. 14 December 1899.

Chestnut, Bill. “The Rise and Demise of the Cumberland Nail & Iron Works.” *South Jersey Magazine*. Fall, 1999.

Chestnut, William and George Chinnici. *Taken to Learn Nailing*. Bridgeton, NJ: Bridgeton Bicentennial Commission. 1976.

“C. R. Baird & Co. in Receiver’s Hands – Said to Owe \$1,500,000.” *The New York Times*. 27 December 1900.

Craig, Mark. Cemetery Director, First Baptist Church of Haddonfield, NJ. Conversations with October and November, 2010.

Crittenden, J. P., and Charles B. Helfrich, compilers. *Philadelphia Securities*. Philadelphia, PA: Burk & McFetridge. 1892.

Cushing, Thomas, and Charles E. Sheppard. *History of the Counties of Gloucester, Salem, and Cumberland New Jersey*. Philadelphia: Everts & Peck. 1883.

“Death of William W. Whitehead.” *The Jewelers’ Circular and Horological Review*. Vol. 37. 1898.

Federal Writer’s Project of the Works Progress Administration for the State of New Jersey. *New Jersey: A Guide to Its Present and Past*. New York, NY: Hastings House. 1939.

“Fire.” *Federalist*. Trenton, NJ. 16 February 1824.

John Milner Associates. “Cultural Resource Assessment of the City Park, Bridgeton, New Jersey.” February 1980.

Hagley Museum and Library database. “Phoenix Steel Corporation.” Records. 1827 – 1963.

Hillstrom, Kevin, and Laurie Collier Hillstrom. *The Industrial Revolution in America*, Vol. 2. Santa Barbara: AC: ABC-Clio. 2005.

Hughes, Howard L. *Public Libraries in New Jersey, 1750-1850*. New Jersey Library Association. 1965.

Lee, Francis Bazley, compiler and editor. *Genealogical and Memorial History of the State of New Jersey*, Vol III. New York, NY: Lewis Historical Publishing Company. 1910.

Lesley, J. Peter. *American Iron and Steel Association*. New York: J. Wiley. 1859.

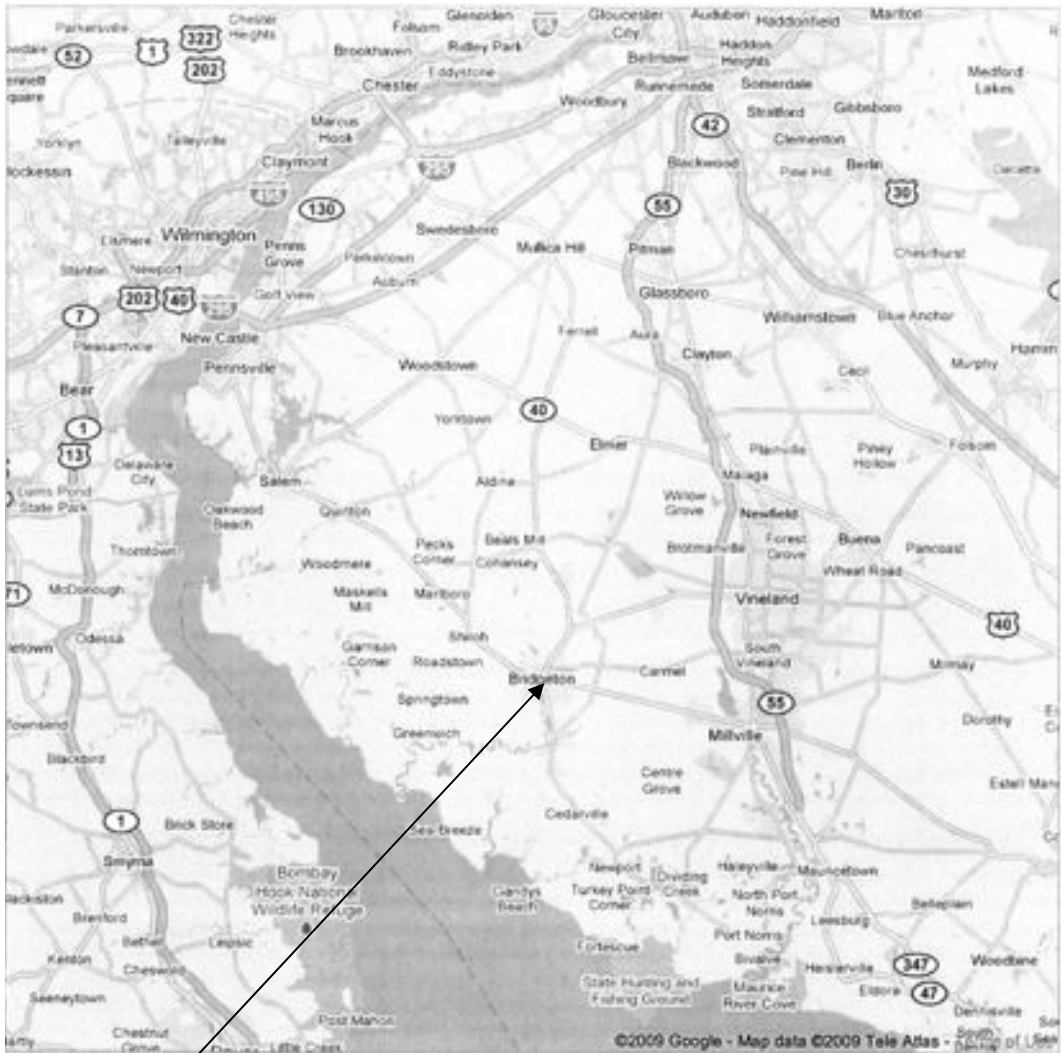
“Misfortune.” *City Gazette*. Charleston, SC. 17 February 1824.

- “Nail Makers Wanted.” *Boston Gazette*. 17 August 1818.
- The New York Times*. 22 January 1892.
- The New York Times*. 23 May 1895.
- Philadelphia Inquirer*. 09 August 1875.
- Phillips, Maureen K. “‘Mechanic Geniuses and Duckies,’ A Revision of New England’s Cut Nail Chronology before 1820.” *APT Bulletin*, Vol. XXV, Numbers 3-4. Fredericksburg, VA: Association for Preservation Technology International. 1994.
- Prowell, George R. *The History of Camden County, New Jersey*. Philadelphia: L. J. Richards & Co. 1886.
- Sanborn Maps for Bridgeton, New Jersey. 1886, 1891, 1896, 1903, 1908, 1915, 1926, 1930.
- Sentinel & Witness*. Middletown, CN. 18 February 1824.
- Sisty, Rev. John. Marriage records in diary. Relayed in a telephone conversation with First Baptist Church of Haddonfield secretary Virginia Timms. 29 October 2010.
- Tumbling Dam Park Commission minutes, 1903 through 1938, two volumes. In the collection of the Bridgeton Free Public Library.
- United States Patent Office. “Machine for Heading Spikes and Nails.” Patent No. 584. 27 January 1838.
- Washington Whig*. Bridgeton, NJ. 1815 through 1830.
- Williams, Carl M. *Silversmiths of New Jersey 1700-1825*. Philadelphia: George S. MacManus Co., 1949.

LIST OF ILLUSTRATIONS AND PHOTOGRAPHS

- Figure 1 Area location map.
Figure 2 Site location map.
Figure 3 City of Bridgeton Tax Map.
Figure 4 Project building on Samuel Moody's 1849 map of Bridgeton.
Figure 5 Project building Beers' 1862 map of Cumberland County.
Figure 6 1866 Hexamer General Surveys map of Cumberland nail & Iron Works.
Figure 7 Project building on detail of 1866 Hexamer General Surveys of Cumberland Nail & Iron Works.
Figure 8 1876 Stewart map of Bridgeton.
Figure 9 Project building on 1886 Sanborn Map.
Figure 10 Detail of project building on 1886 Sanborn Map.
Figure 11 Project building on 1891 Sanborn Map.
Figure 12 Project building on 1896 Sanborn Map.
Figure 13 Project building on 1903 Sanborn Map.
Figure 14 Project building on 1908 Sanborn Map.
Figure 15 Project building on 1915 Sanborn Map.
Figure 16 Project building on 1923 Sanborn Map.
Figure 17 Project building on 1930 Sanborn Map.
Figure 18 Tintype and statue of David Reeves, co-founder of Cumberland Nail & Iron Works.
Figure 19 Lithograph of Samuel J. Reeves, son of David Reeves.
Figure 20 Lithograph of Robert Shute Buck, partner in Cumberland Nail and Iron Works.
Figure 21 Lithograph of Robert C. Nichols, partner in Cumberland Nail and Iron Works.
Figure 22 Lithograph of George Walters, Chief Engineer for Phoenix Iron Company and Cumberland Nail & Iron Works.
Figure 23 Representation of Cumberland Nail and Iron Works on 1839 map of Bridgeton.
Figure 24 Representation of Cumberland Nail and Iron Works on Moody's 1849 map of Bridgeton.
Figure 25 Representation of Cumberland Nail and Iron Works, between 1847 and 1856.
Figure 26 Photograph of Cumberland Nail and Iron Company in the 1870s.
Figure 27 Detail of photograph, showing Cumberland Nail and Iron Company Office in the 1870s.
Figure 28 Lithograph of Cumberland nail and Iron Company, 1881.
Figure 29 Cumberland Nail and Iron Company on Bailey's *Bird's Eye View of Bridgeton*, 1886.
Figure 30 Detail of office on Bailey's *Bird's Eye View of Bridgeton*, 1886.
Figure 31 Interior of a nineteenth-century cut nail factory (not Cumberland Nail and Iron Company).
Figure 32 Cumberland Nail and Iron Company Office circa 1911.
Figure 33 West bank of Cohansey River, with office, circa 1911.
Figure 34 Cumberland Nail and Iron Company Office circa 1911, looking south.
Figure 35 Cumberland Nail and Iron Company Office circa 1911, looking south.
Figure 36 Cumberland Nail and Iron Company Office circa 1911, looking north.
Figure 37 Linoleum print of Cumberland Nail and Iron Company Office in 1935 by James Pettit Cox.
Figure 38 Illustration of Cumberland Nail and Iron Company Office in 1973 by James Pettit Cox.
Figure 39 Cumberland Nail and Iron Company Office on Mayor Aiken Drive, looking northeast, 2010.
Figure 40 Cumberland Nail and Iron Company Office looking east, 2010.
Figure 41 Cumberland Nail and Iron Company Office looking southeast, 2010.
Figure 42 Cumberland Nail and Iron Company Office, looking west, 2010.
Figure 43 Cumberland Nail and Iron Company Office, looking north, 2010.
Figure 46 Hand-forged shutter dog on First Build (south) section, 2010.
Figure 47 Flower-motif cast-iron shutter dog on Second Build(center) section, 2010.
Figure 48 Scroll-motif cast-iron shutter dog on Third Build (north) section, 2010.
Figure 49 Repair to weatherboard made with cementitious material, now failing, 2010.
Figure 50 Bulge in cladding on east side indicating deterioration and compression of framing, 2010.
Figure 51 Six-over-six window in Second Build (center) section, 2010.
Figure 52 Original west entrance door, 2010.
Figure 53 Window hoods stored in basement, 2010.

- Figure 54 Missing shutter from east façade stored in basement, 2010.
 Figure 55 Interior looking northeast, 2010.
 Figure 56 Interior of Third Build (north section) looking northeast, 2010.
 Figure 57 Interior of Third Build (north section) looking southwest, 2010.
 Figure 58 Fireplace added by City of Bridgeton circa 1940, 2010.
 Figure 59 Double-faced clock from interior, 2010.
 Figure 60 Clock interior, 2010.
 Figure 61 South side of brick nogging in attic in what was the north gable of the First Build, 2010.
 Figure 62 North side of brick nogging in attic in what was the north gable of the First Build, 2010.
 Figure 63 Attic of First Build (south section) looking north, 2010.
 Figure 64 Framing in center of Third Build (north section) ridge, showing previous location of chimney, 2010.
 Figure 65 Current access hatch and line of previous opening for stairs to attic, 2010.
 Figure 66 Cumberland Nail and Iron Company stabilization of safe base in basement, 2010.
 Figure 67 Non-engineered sistering of joist with plywood, 2010.
 Figure 68 West sill of First Build (south) section showing previous repair interventions, 2010.
 Figure 69 Failure of girt on north side of chimney base in basement.
 Figure 70 Deteriorated double joist on north side of brick chimney base, 2010.
 Figure 71 Double-notched joists in basement under Third Build (north section), 2010.
 Figure 72 Warm air furnace in southeast corner of basement, 2010.
 Figure 73 Fuel storage tank, electrical panel and sewer and water connection in southwest corner of basement, 2010.
 Figure 74 Electrical panel on south wall of basement, 2010.
 Figure 75 Corrosion on sewer and water service at penetration through west basement wall, 2010.
 Figure 76 East door in First Build, fixed closed and covered with finishes on the interior, 2010.
 Figure 77 West door in First Build, 2010.
 Figure 78 Photocopy of clock case from interior with natural finish intact, 1976



Site

Figure 1

Area location map.

Google Maps



Site

Figure 2

Site location map.

Google Maps

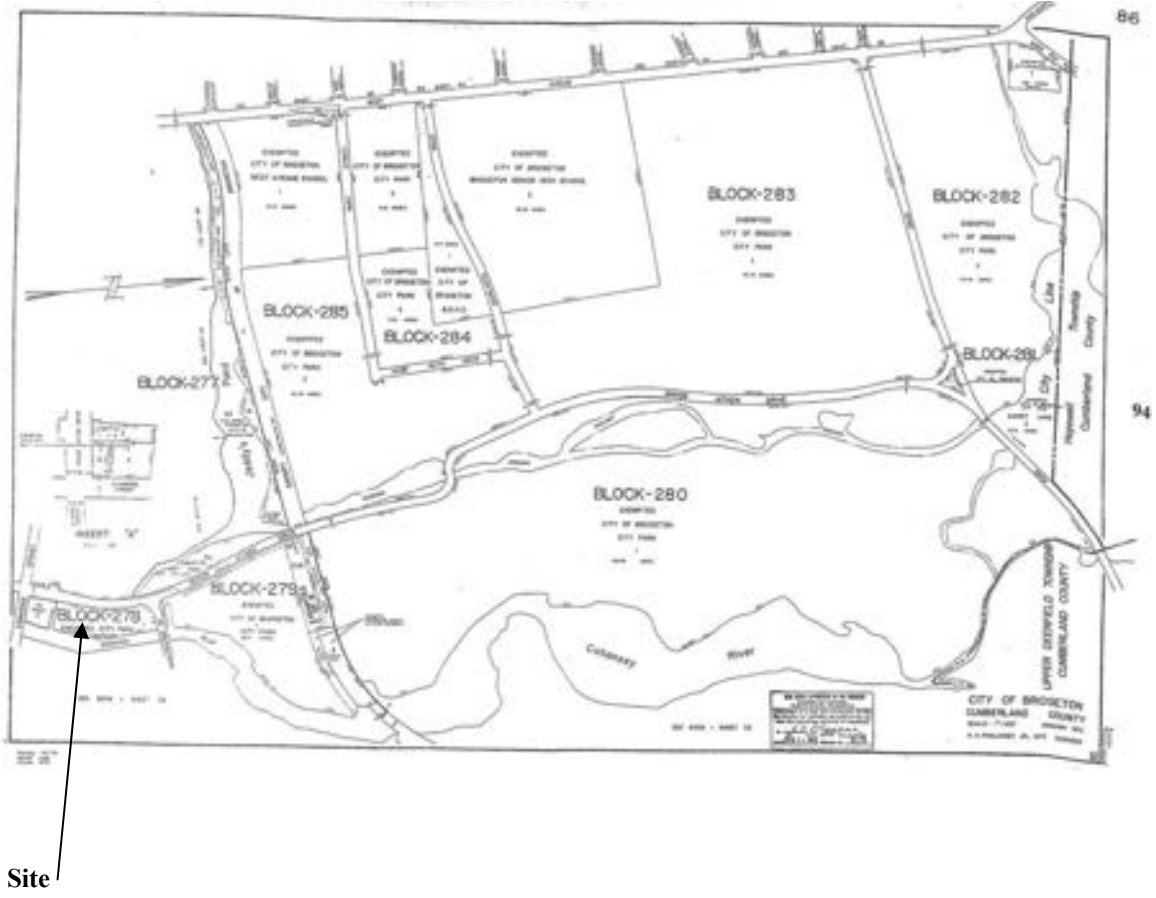
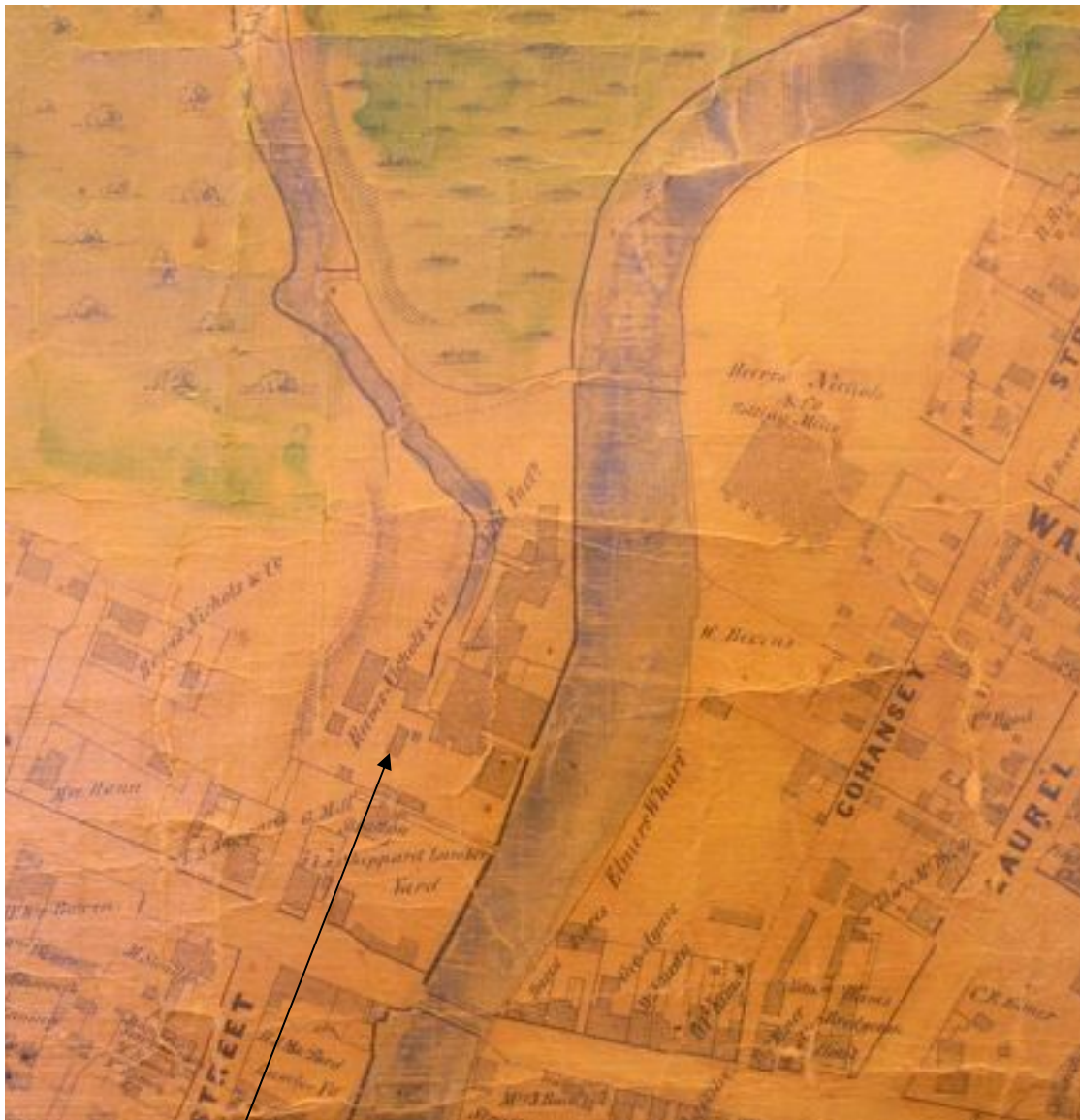


Figure 3

City of Bridgeton Tax Map.



Office

Figure 4

From Samuel Moody's *Map of Bridgeton N. Jersey*, 1849.
The complex is labeled Reeves Nichols & Co. Note that the north addition is not shown.

Courtesy of the Cumberland County Historical Society

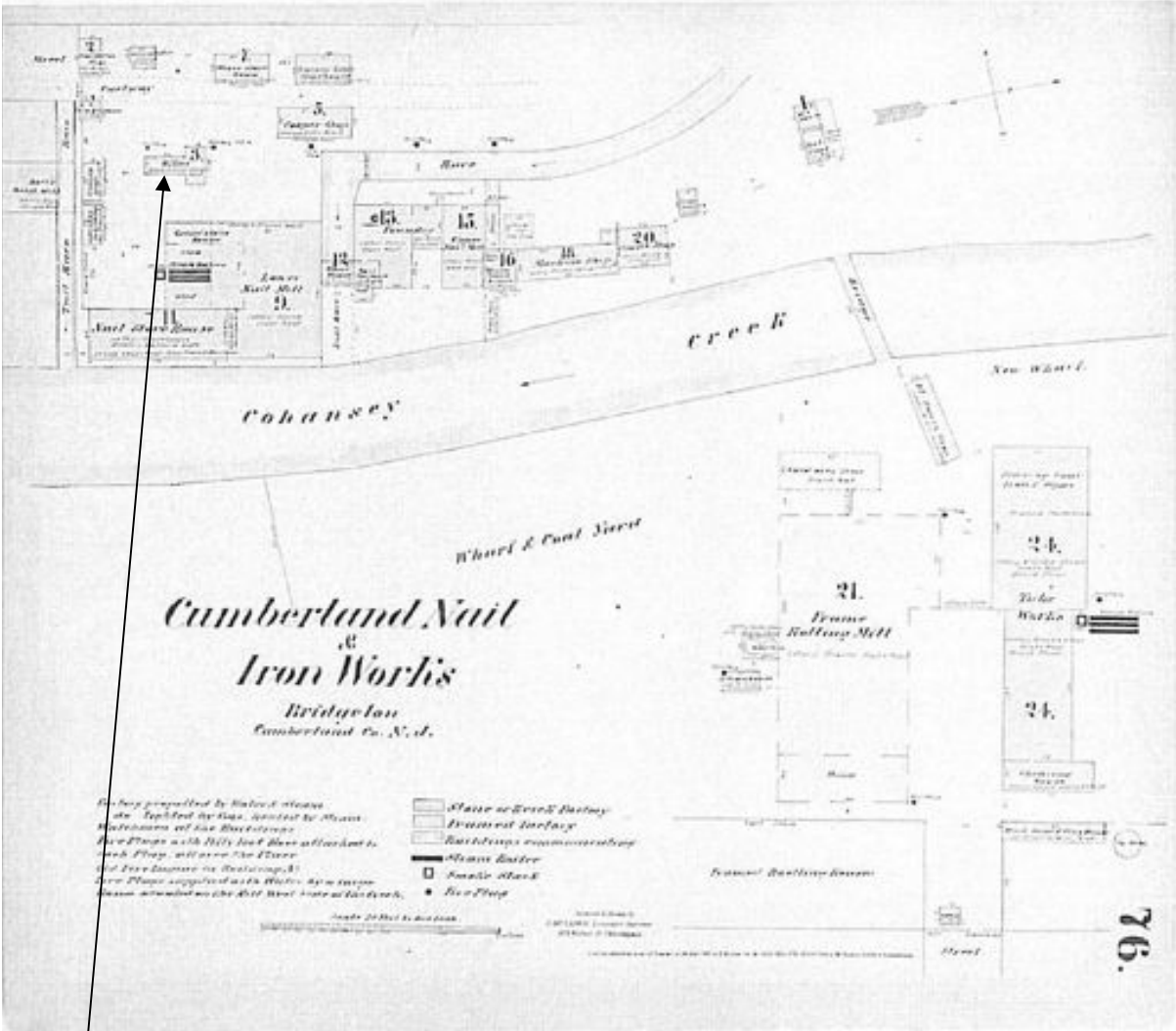


Office

Figure 5

1862 S.N. and F. W. Beers map of Cumberland County.

Courtesy of the Cumberland County Historical Society



Office

Figure 6

1866 Hexamer General Surveys map.

Map Collection, Free Library of Philadelphia

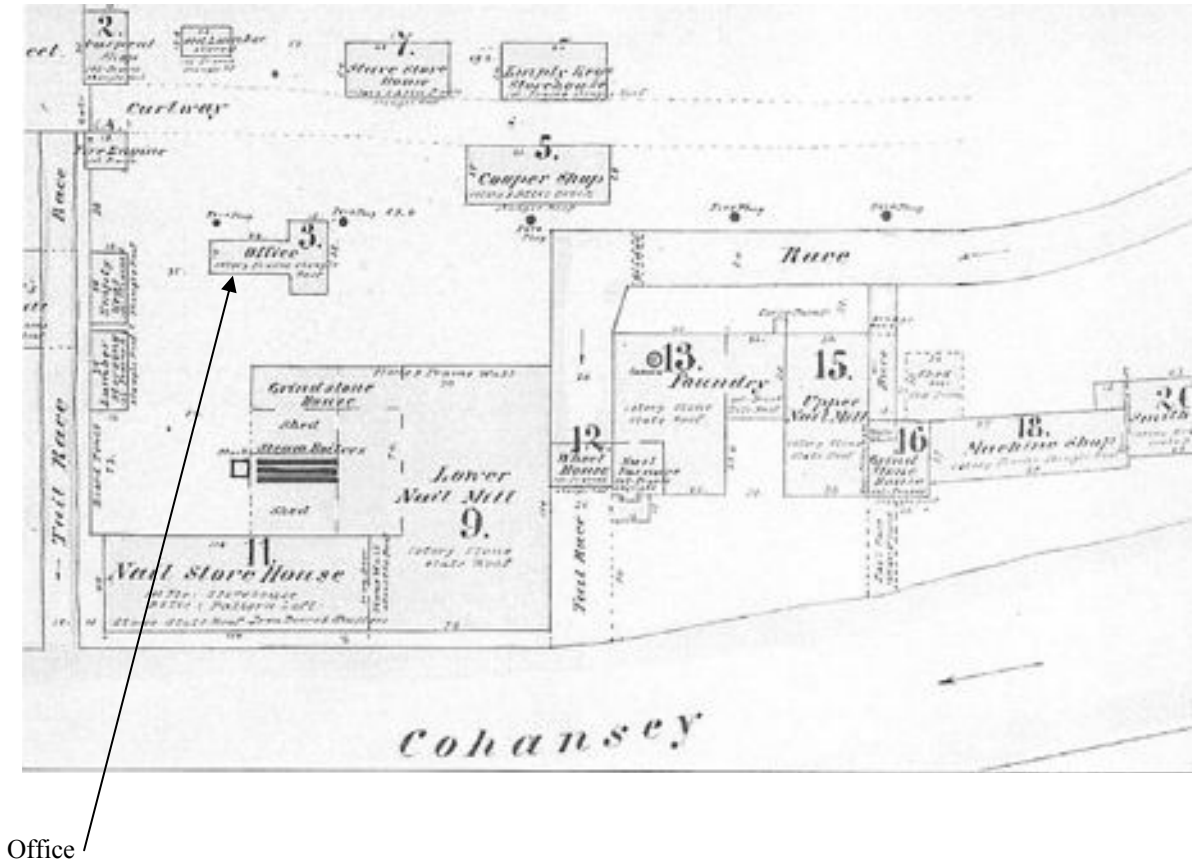


Figure 7

1866 Hexamer General Surveys map, detail. Office information: 1 story Frame Shingle Roof.

Map Collection, Free Library of Philadelphia

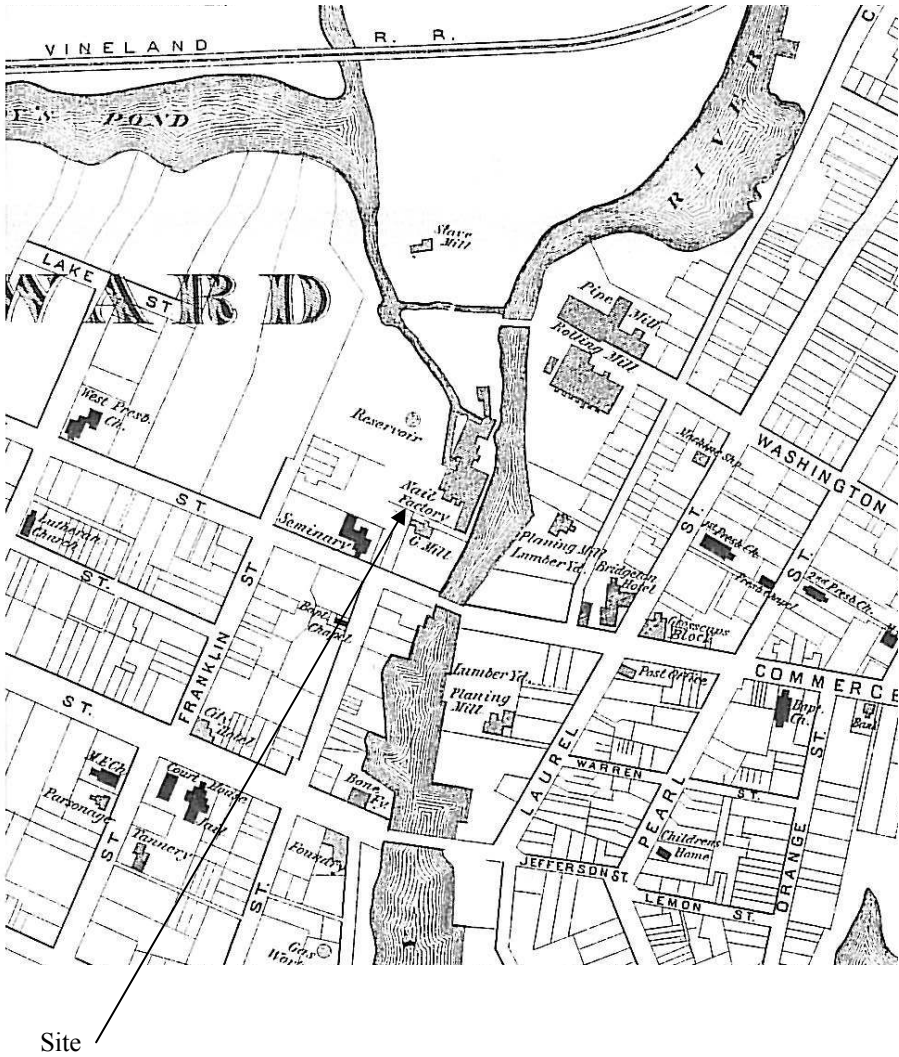
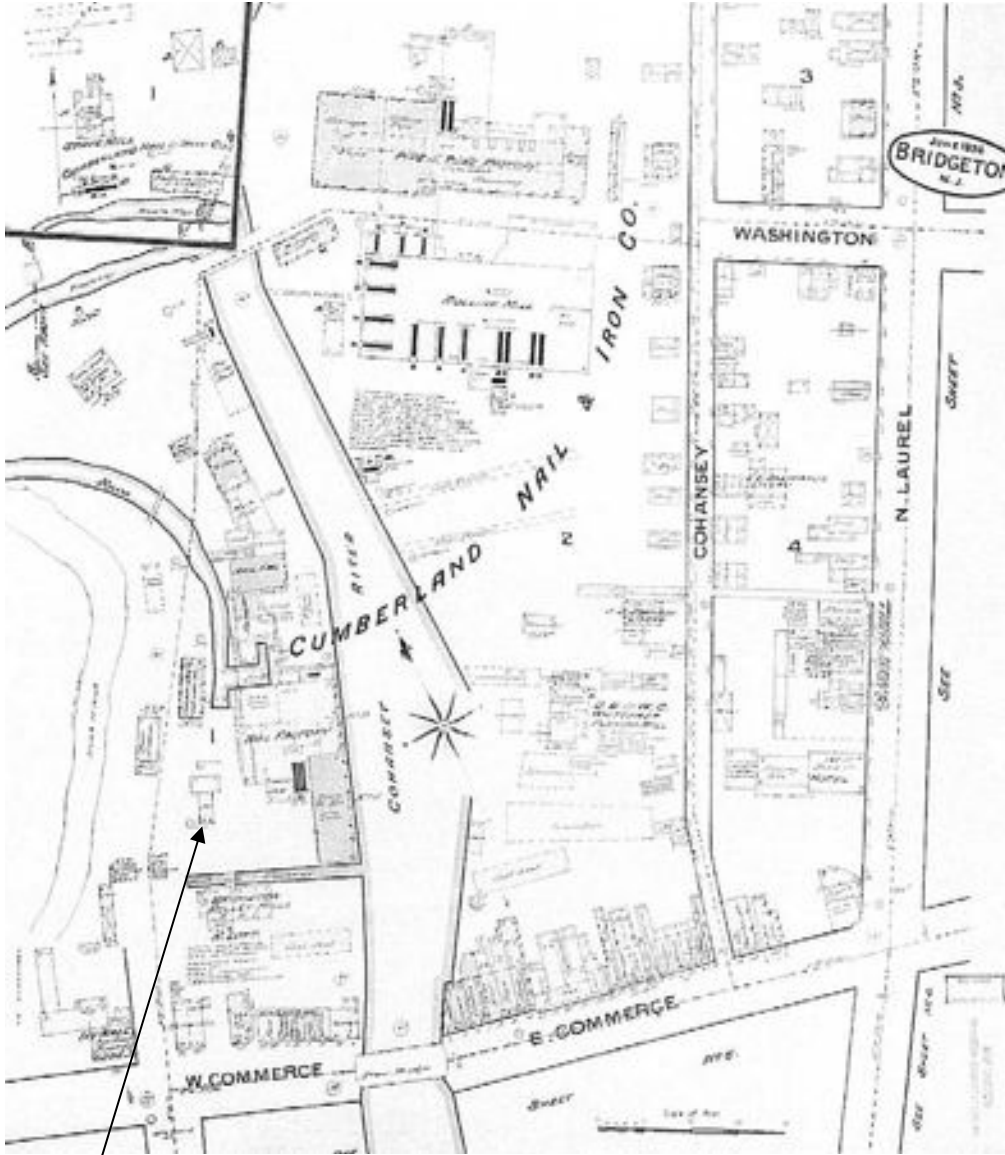


Figure 8

1876 map of Bridgeton from *Combination Atlas Map of Cumberland County New Jersey* by D. J. Stewart, Philadelphia.

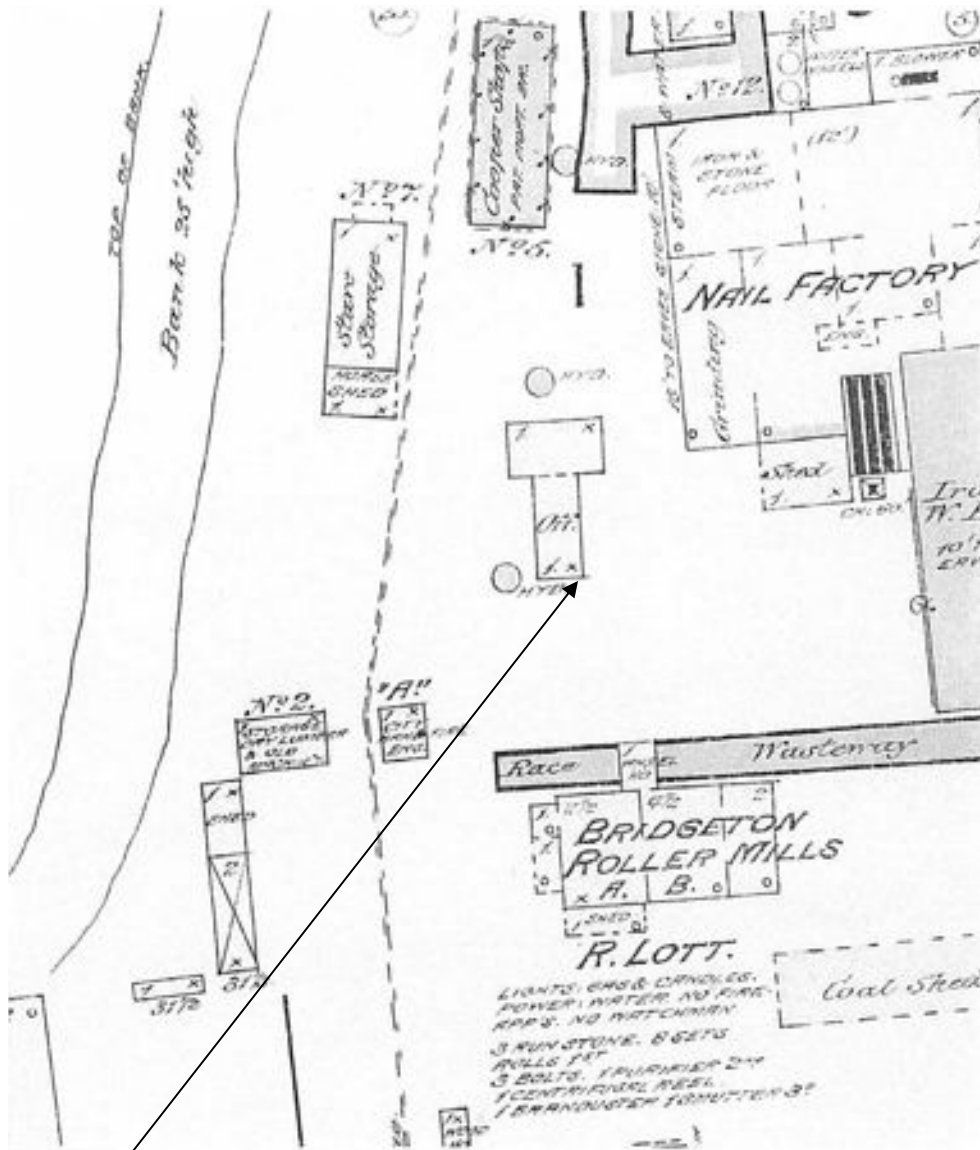


Office

Figure 9

1886 Sanborn Map, showing entire Cumberland Nail and Iron Company site.

Princeton University Firestone Library

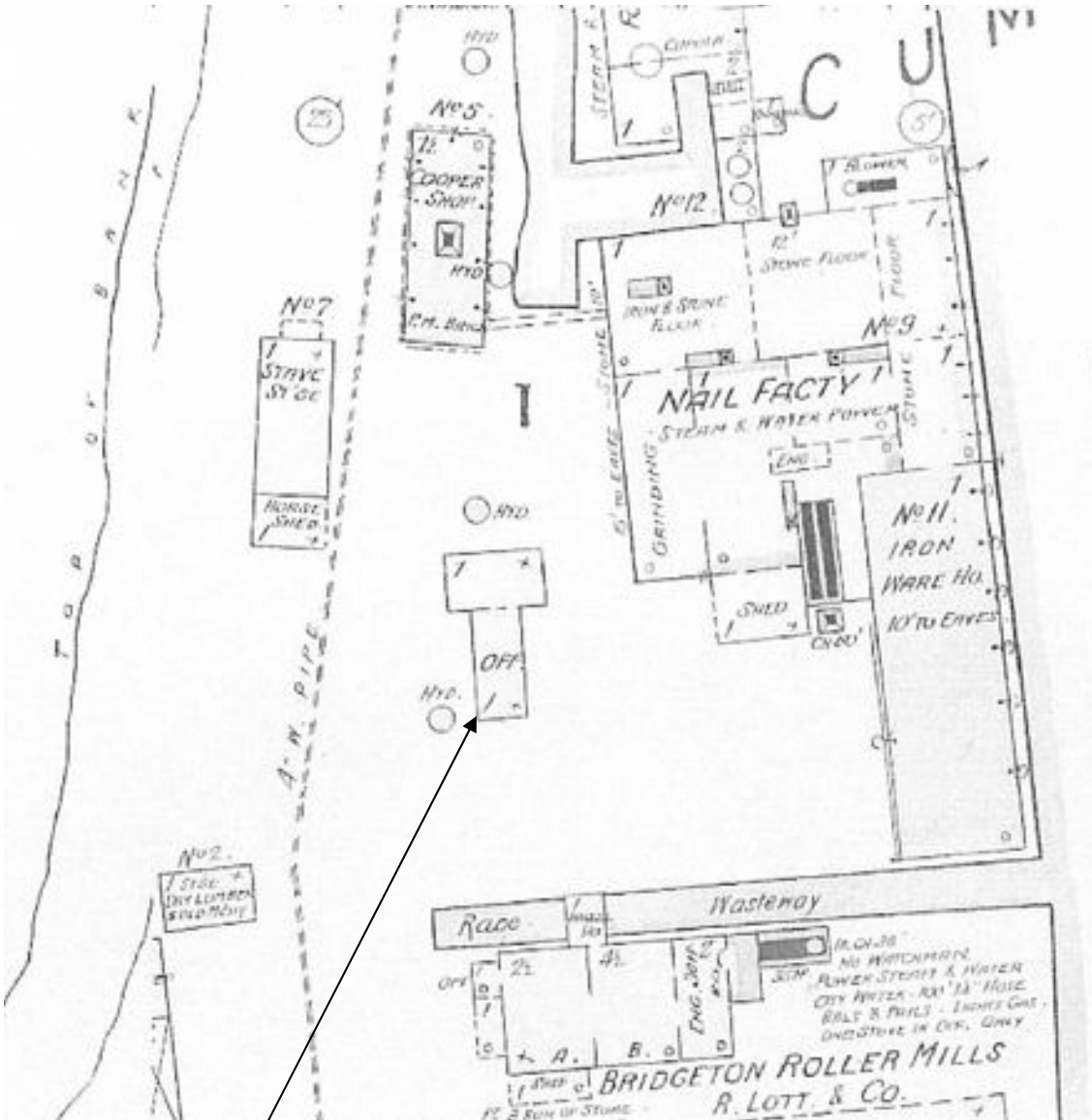


Office

Figure 10

1886 Sanborn Map, detail.

Princeton University Firestone Library

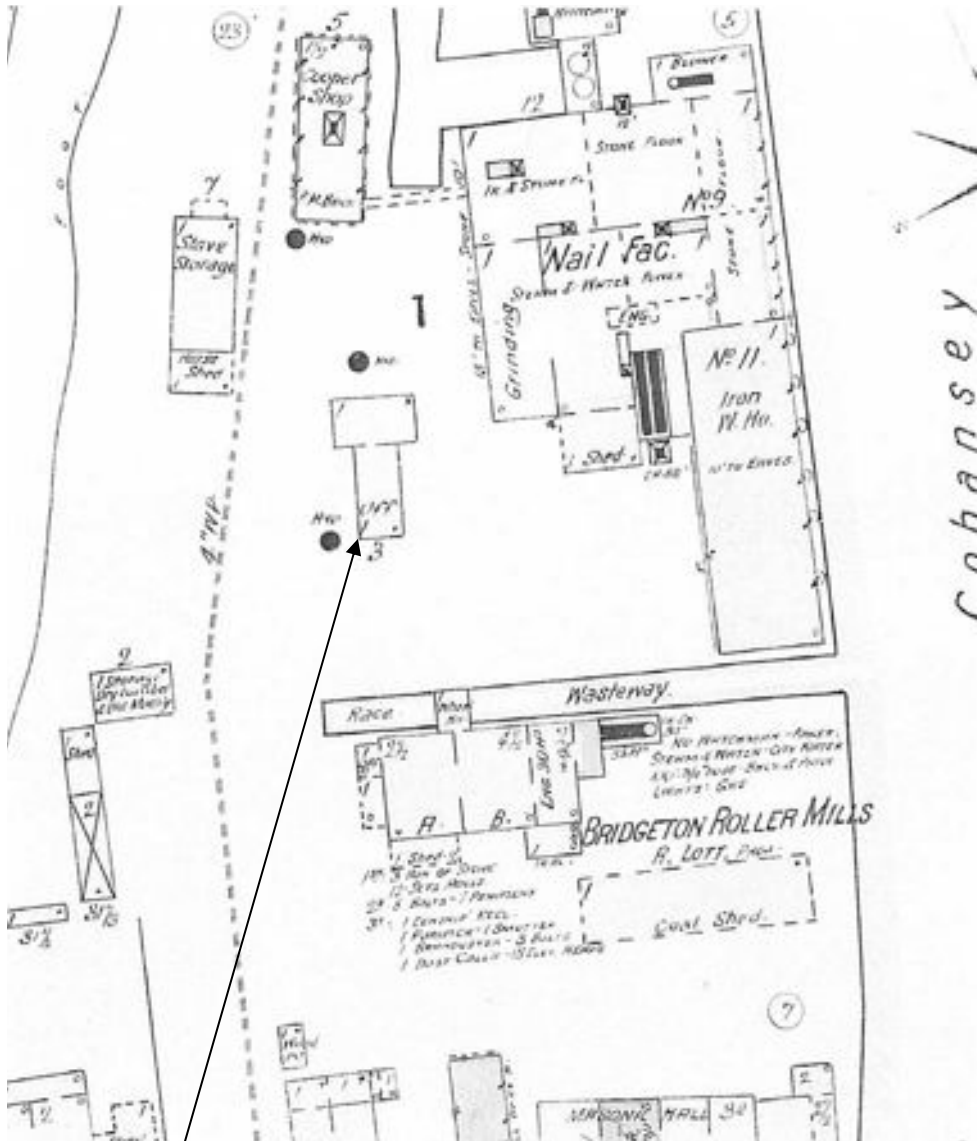


Office

Figure 11

1891 Sanborn Map.

Princeton University Firestone Library



Office

Figure 12

1896 Sanborn Map.

Princeton University Firestone Library

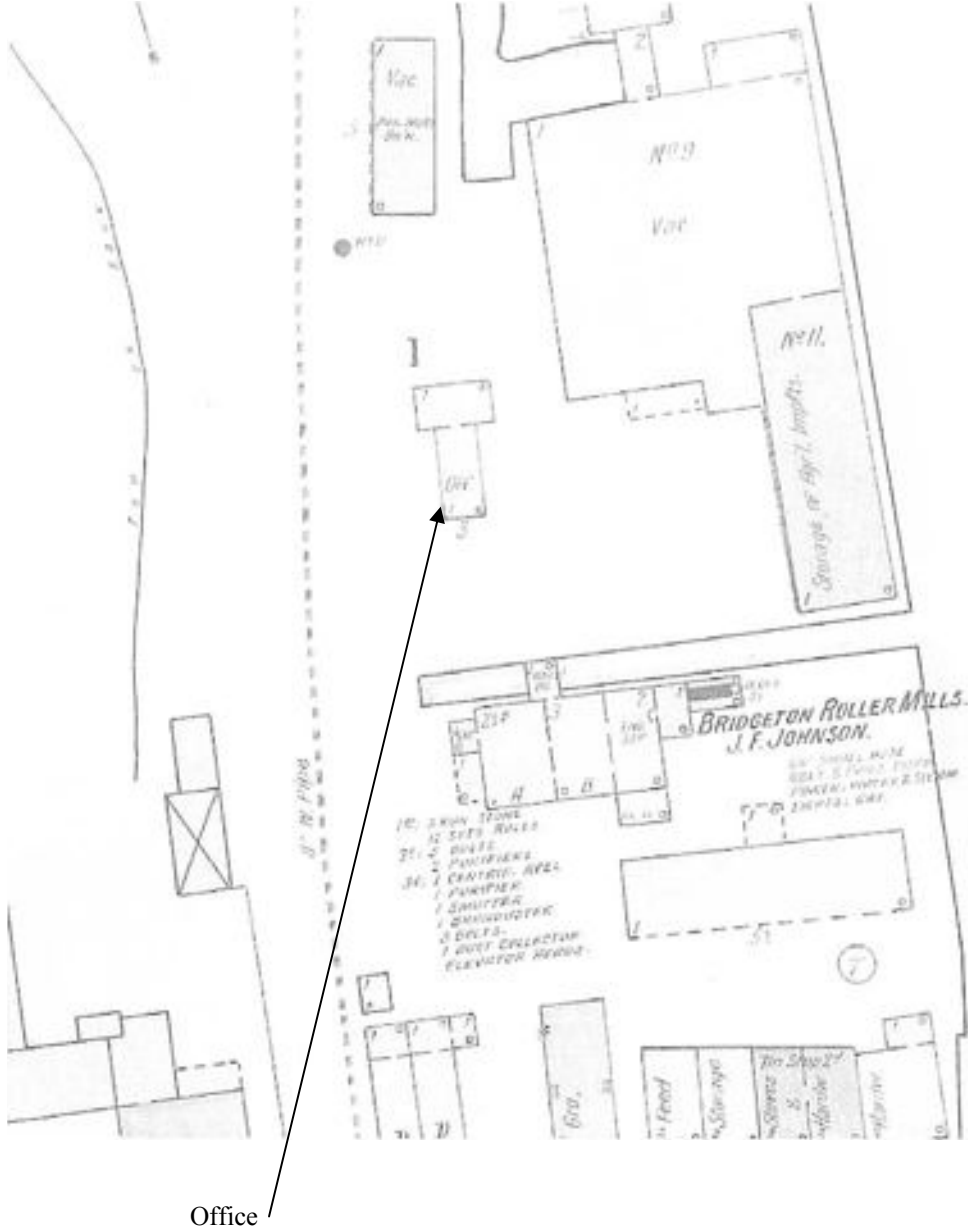


Figure 13

1903 Sanborn Map. Note that factory buildings are indicated as vacant, or being used for storage of agricultural equipment.

Princeton University Firestone Library

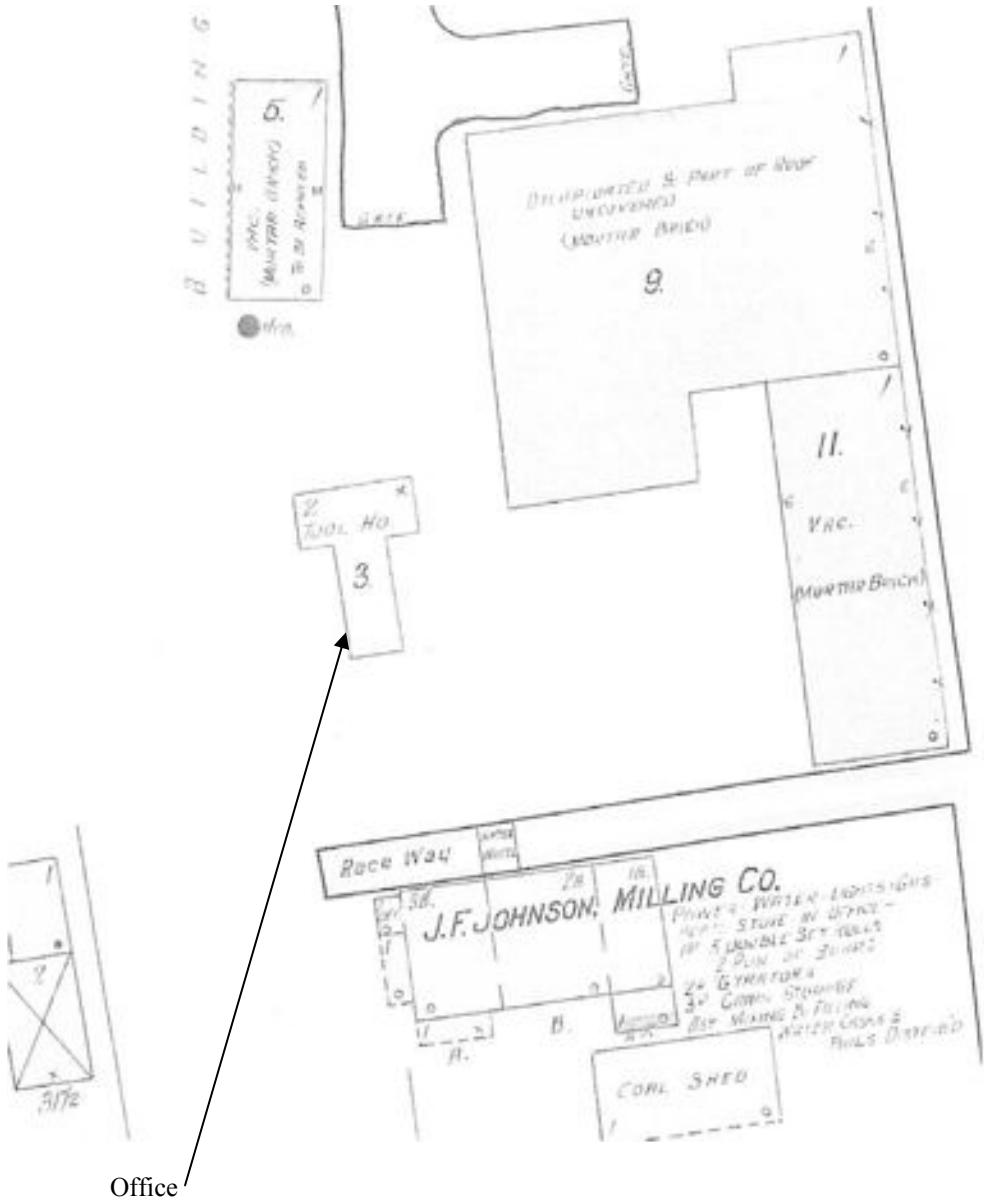


Figure 14

1908 Sanborn Map. Note that buildings are vacant, and Building 9 has become dilapidated, with part of the roof missing. The office is labeled as a tool house.

Princeton University Firestone Library

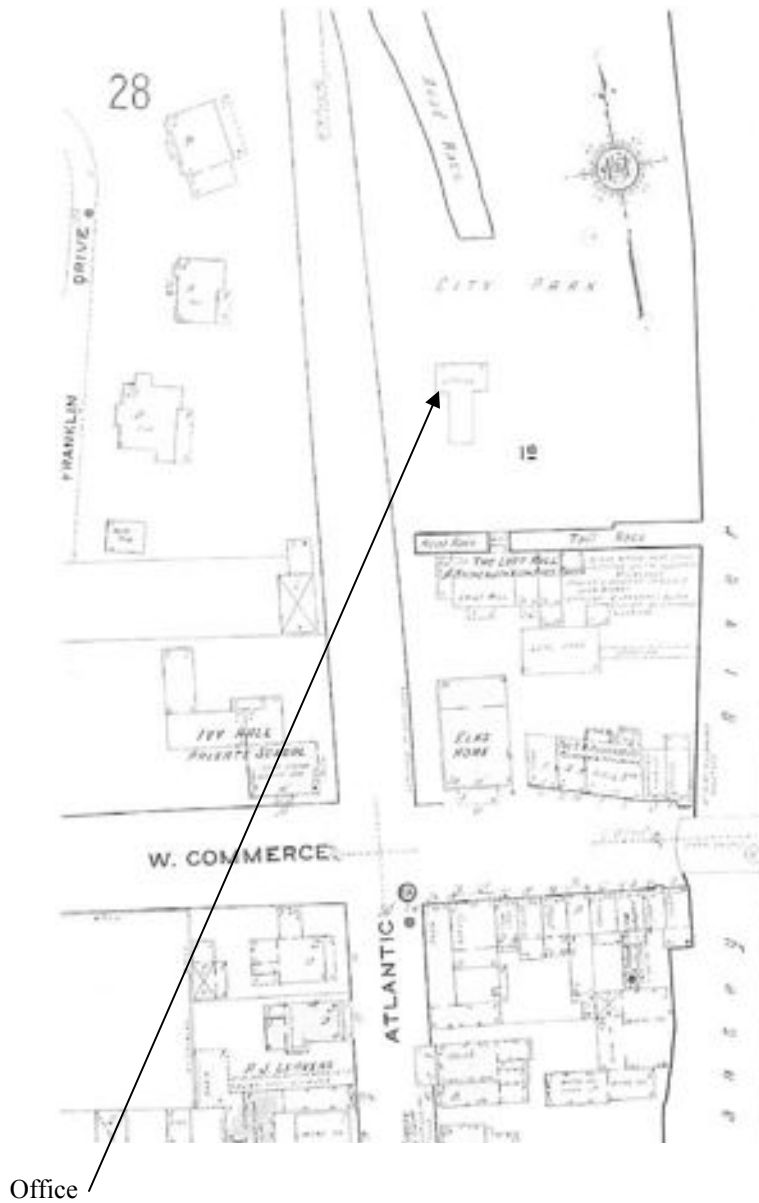
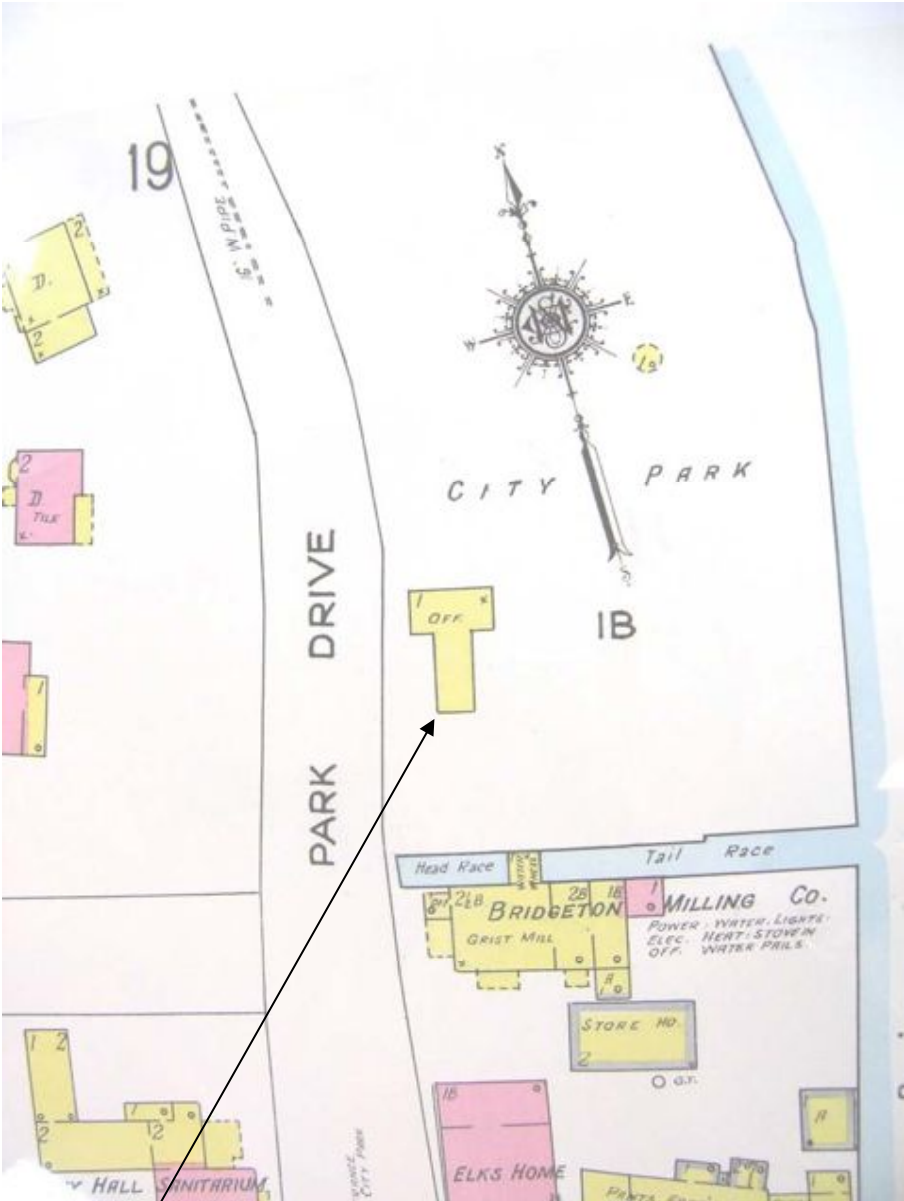


Figure 15

1915 Sanborn Map. Note that all Cumberland Nail and Iron Company buildings have been removed except for the office, and the entrance into the City Park has been constructed. The office is once again identified as an office.

Princeton University Firestone Library.



Office

Figure 16

1923 Sanborn Map.

Princeton University Firestone Library.



Office

Figure 17

1930 Sanborn Map.

Princeton University Firestone Library.



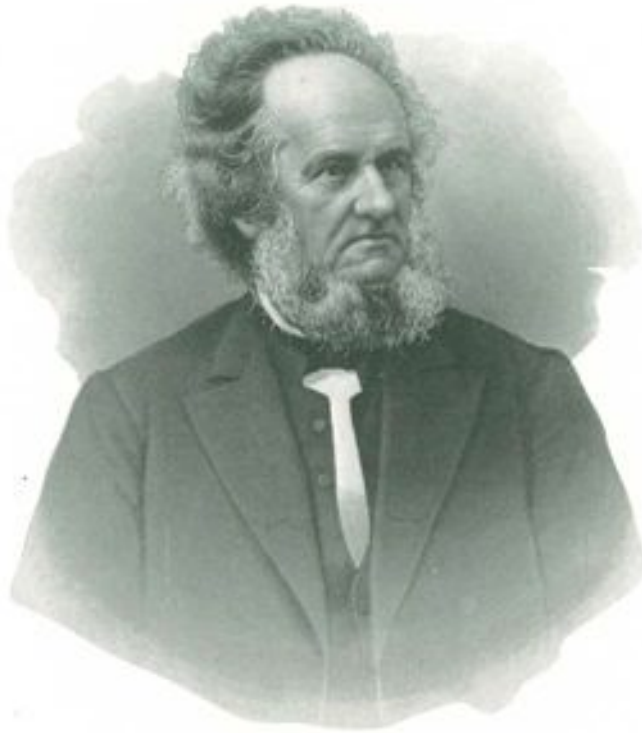
Figure 18

David Reeves (1793-1871), and David Reeves statue, erected by employees of Phoenix Iron Company in David Reeves Park, Phoenixville, PA.



Figure 19

Samuel J. Reeves (1818-1878), son of David Reeves.



Robt S. Buck

Figure 20

Robert Shute Buck (1802-1877).



R. C. Nichols

Figure 21

Robert C. Nichols (1814-1900).



Figure 22

George Walters, Chief Engineer.

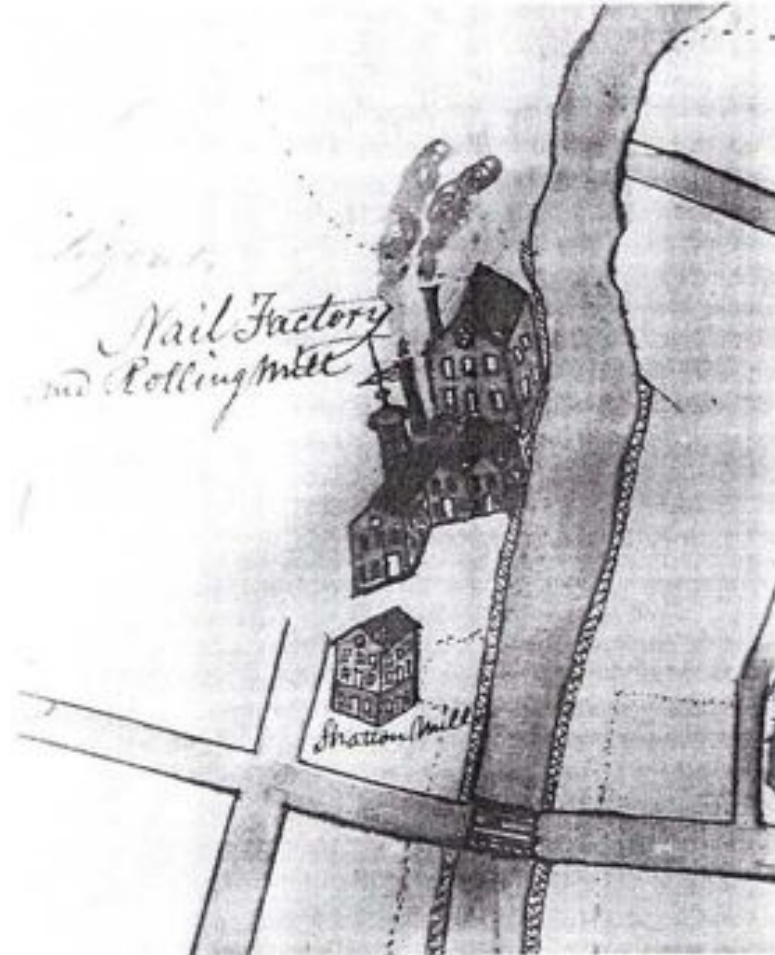


Figure 23

From an 1839 map of Bridgeton, the earliest known representation of the Cumberland Nail and Iron Company.

Courtesy of the Cumberland County Historical Society

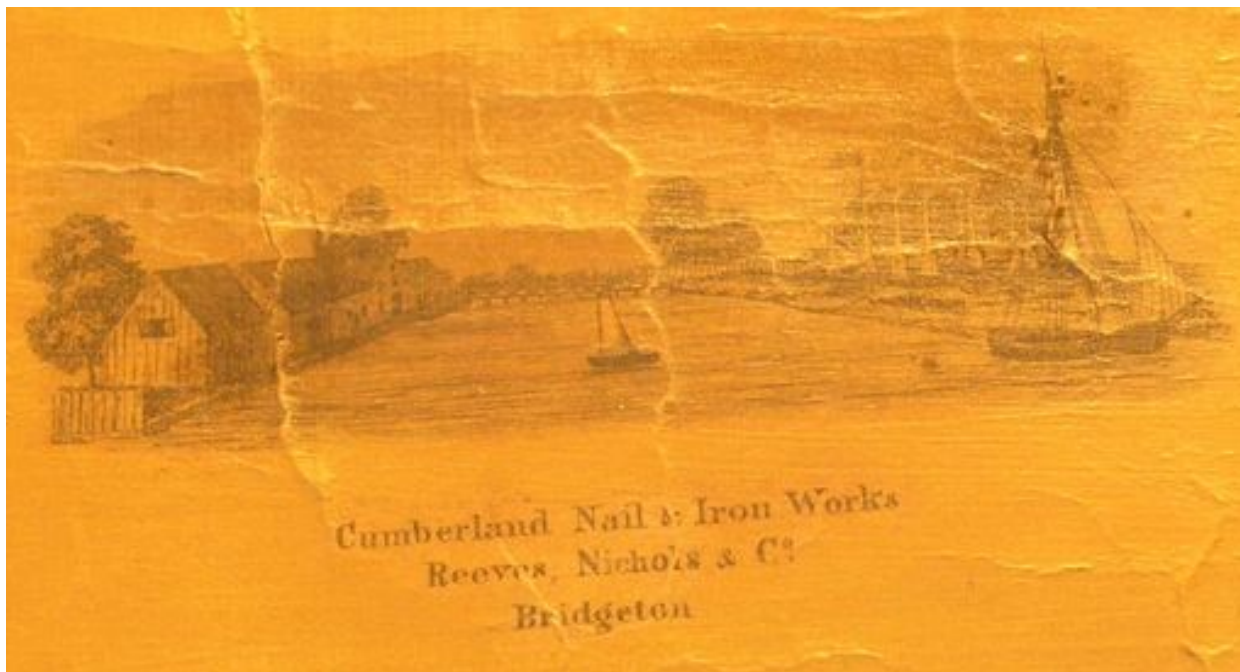


Figure 24

From Samuel Moody's *Map of Bridgeton N. Jersey*, 1849.

The complex is labeled Reeves Nichols & Co., a name that it never actually held. Robert Nichols and Robert S. Buck both became partners in 1847 under the name Reeves, Buck & Co., and the business was incorporated as Cumberland Nail and Iron Company in 1856.

Courtesy of the Cumberland County Historical Society

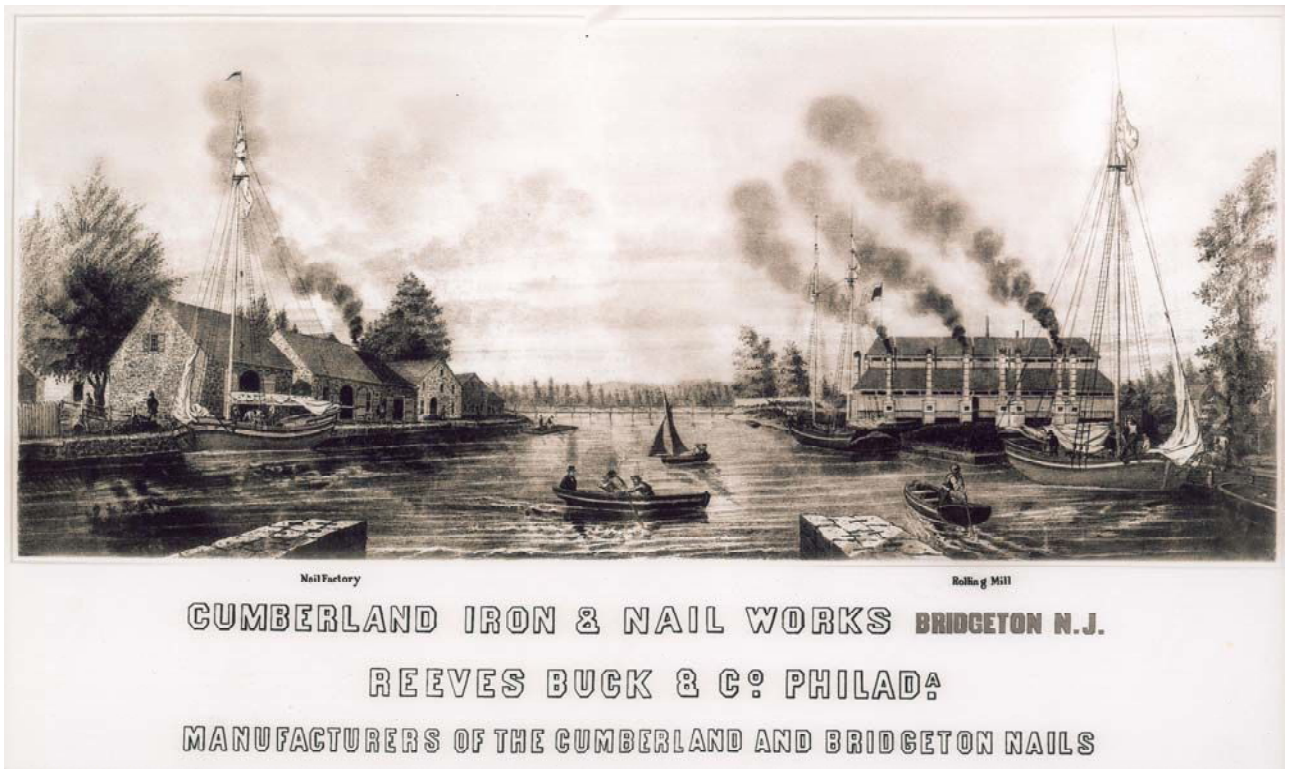


Figure 25

Cumberland Nail and Iron works between 1847, when Robert S. Buck became a partner, and 1856, when it was incorporated as Cumberland Nail and Iron Company.

Courtesy of Caesar Cappoli



Figure 26

Cumberland Nail and Iron Company, 1870s (before construction of coal trestle).

Courtesy of James Bergman



Figure 27

Only known photograph of the Cumberland Nail and Iron Company Office dating from the period when the company was operating, 1870s.

Courtesy of James Bergman

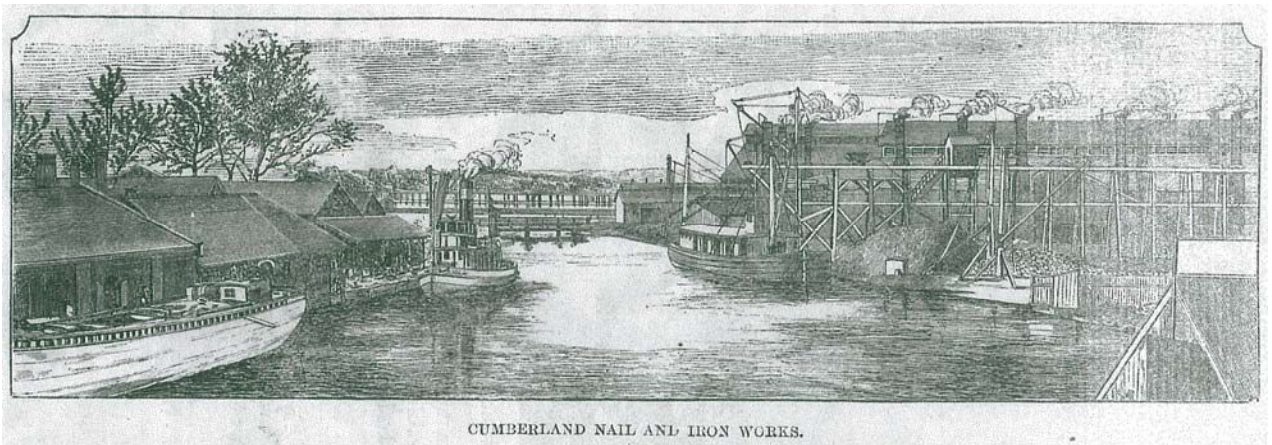
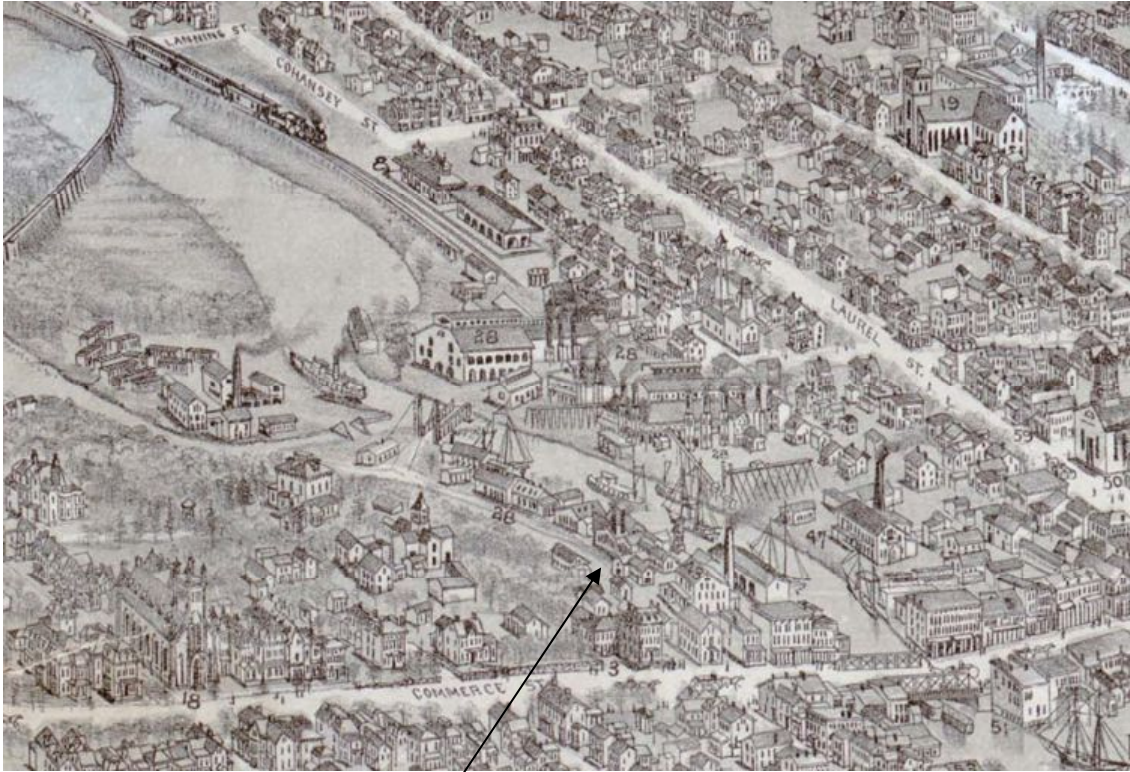


Figure 28

From *The City of Bridgeton, N.J.*, by George W. McCowan, 1881.

Courtesy of James Bergman



Cumberland Nail and Iron Company

Figure 29

Cumberland Nail and Iron Company on O. H. Bailey & Co. *Bird's Eye View of Bridgeton*, 1886.

Library of Congress America's Memory Historical Collections



Cumberland Nail and Iron Company Office

Figure 30

Cumberland Nail and Iron Company office on O. H. Bailey & Co. *Bird's Eye View of Bridgeton*, 1886.

Library of Congress America's Memory Historical Collections



Figure 31

Interior of a nineteenth-century cut nail factory (not Cumberland Nail and Iron Company).



Figure 32

Cumberland Nail and Iron Company Office circa 1911, following demolition of the nail factory buildings in 1910. Note that the clock has been relocated to the west side.

Courtesy of the Cumberland County Historical Society



Figure 33

West bank of the Cohansey River circa 1911. Note that the steps appear to have been removed from the east door of the office.

Courtesy of James Bergman

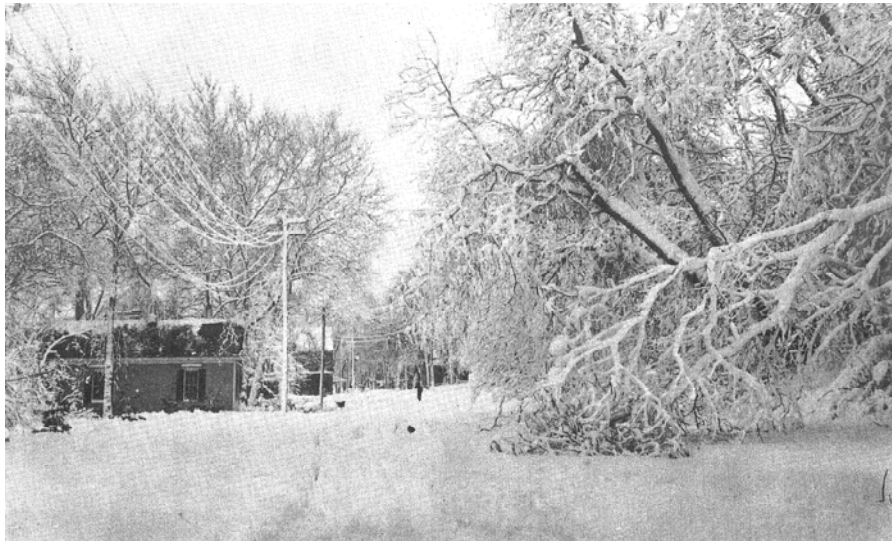


Figure 34

Cumberland Nail and Iron Company Office about 1911, looking south. Note absence of chimney on north façade.

Courtesy of James Bergman



Figure 35

Cumberland Nail and Iron Company Office about 1911 looking south.

Courtesy of James Bergman



Figure 36

Cumberland Nail and Iron Company Office about 1911, looking north.

Courtesy of James Bergman

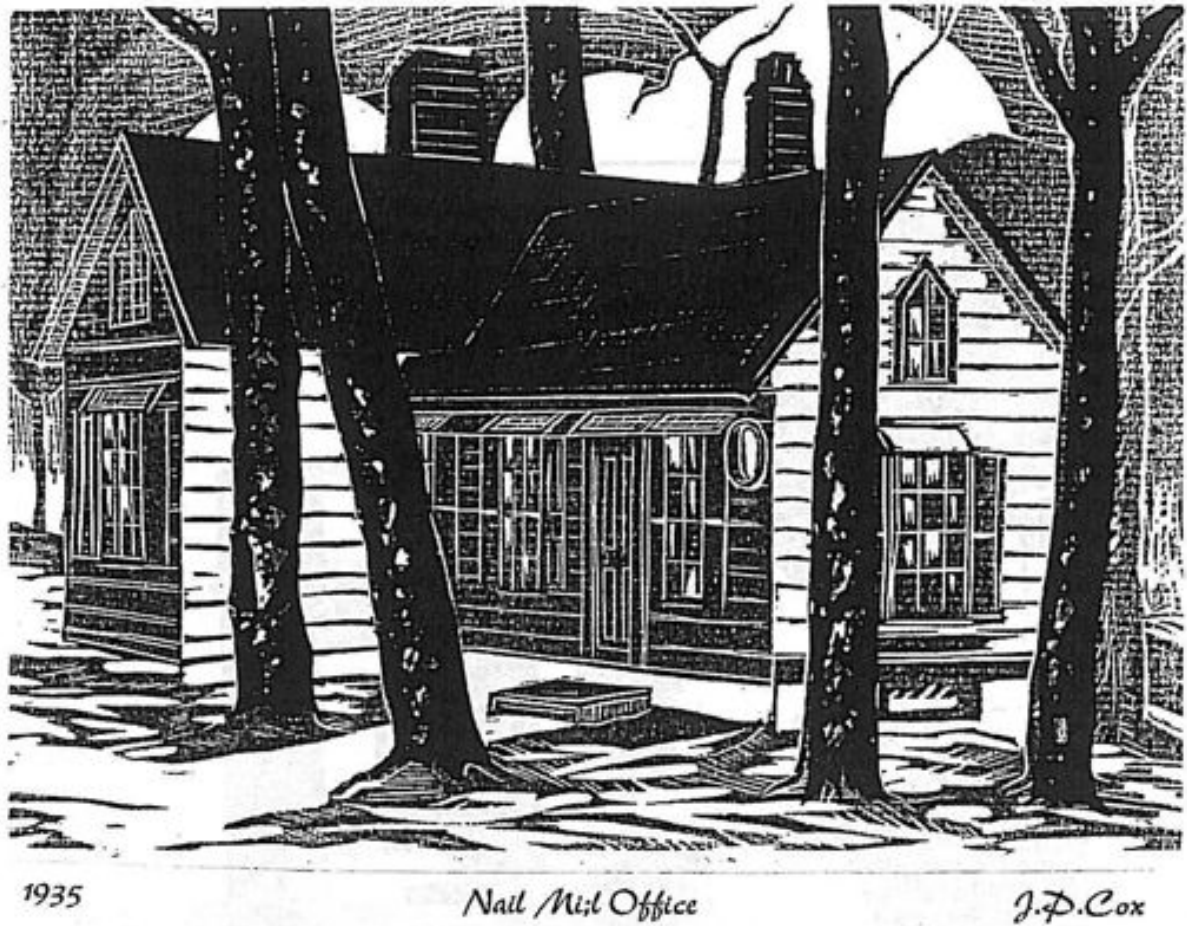


Figure 37

Linoleum print of Cumberland Nail and Iron Company Office in 1935 by James Pettit Cox. Note that chimney in south section is still extant.

Courtesy of Arthur Cox



Figure 38

Illustration of Cumberland Nail and Iron Company Office in 1973 by James Pettit Cox. Note that chimney in south section has been removed, and that the window hoods are still extant.

Courtesy of Arthur Cox



Figure 39

Cumberland Nail and Iron Company Office on Mayor Aiken Drive, looking northeast.

Watson & Henry Associates photograph, 2010



Figure 40

Cumberland Nail and Iron Company Office looking east.

Watson & Henry Associates photograph, 2010



Figure 41

Cumberland Nail and Iron Company Office looking southeast.

Watson & Henry Associates photograph, 2010



Figure 42

Cumberland Nail and Iron Company Office looking west.

Watson & Henry Associates photograph, 2010



Figure 43

Cumberland Nail and Iron Company Office looking north.

Watson & Henry Associates photograph, 2010



Figure 44

Exterior face of double-faced clock made by John Whitehead.

Watson & Henry Associates photograph, 2010



Figure 45

Cornerboard and beaded weatherboards, showing damage done through inappropriate paint removal.

Watson & Henry Associates photograph, 2010



Figure 46

Hand-forged shutter dog on First Build (south) section.

Watson & Henry Associates photograph, 2010



Figure 47

Flower-motif cast-iron shutter dog on Second Build (center) section.

Watson & Henry Associates photograph, 2010



Figure 48

Scroll-motif cast-iron shutter dog on Third Build (north) section.

Watson & Henry Associates photograph, 2010



Figure 49

Repair to weatherboard made with cementitious material, now failing.

Watson & Henry Associates photograph, 2010



Figure 50

Bulge in cladding on east side, indicating deterioration and compression of framing.

Watson & Henry Associates photograph, 2010



Figure 51

Six-over-six window in Second Build (center) section.

Watson & Henry Associates photograph, 2010



Figure 52

Original entrance door, showing evidence of notices tacked to door during occupancy by the Cumberland Nail and Iron Company, and inappropriate No Smoking sign.

Watson & Henry Associates photograph, 2010



Figure 53

Window hoods stored in basement.

Watson & Henry Associates photograph, 2010



Figure 54

Shutter missing from east façade stored in basement.

Watson & Henry Associates photograph, 2010



Figure 55

Interior looking northeast. Note change in floorboards in foreground marking juncture of First and Second Builds (south and center sections).

Watson & Henry Associates photograph, 2010



Figure 56

Interior of Third Build (north section) looking northeast.

Watson & Henry Associates photograph, 2010



Figure 57

Interior of Third Build (north section) looking southwest.

Watson & Henry Associates photograph, 2010



Figure 58

Fireplace added by City of Bridgeton circa 1944.

Watson & Henry Associates photograph, 2010



Figure 59

Double-faced clock from interior.

Watson & Henry Associates photograph, 2010



Figure 60

Clock interior.

Watson & Henry Associates photograph, 2010



Figure 61

South side of brick nogging in what was originally the north gable of the First Build (south section).
Whitewash on the side facing south is part of evidence that the south section was built first.

Watson & Henry Associates photograph, 2010



Figure 62

North side of brick nogging in what was originally the north gable of the First Build (south section). Lack of whitewash and rough mortar joints indicate this side faced the exterior.

Watson & Henry Associates photograph, 2010



Figure 63

Attic of First Build (south section) looking north.

Watson & Henry Associates photograph, 2010



Figure 64

Framing in center of Third Build (north section) ridge, showing previous location of chimney.

Watson & Henry Associates photograph, 2010



Beaded baseboard

Line of previous stair opening

Figure 65

Current access hatch and line of previous opening for stairs to the attic. Note beaded baseboard.

Watson & Henry Associates photograph, 2010



Figure 66

Cumberland Nail and Iron Company stabilization of safe base in basement.

Watson & Henry Associates photograph, 2010



Figure 67

Non-engineered sistering of joist with plywood.

Watson & Henry Associates photograph, 2010



Figure 68

West sill of First Build (south) section showing previous repair interventions.

Watson & Henry Associates photograph, 2010



Split

Figure 69

Failure of girth on north side of chimney base in basement.

Watson & Henry Associates photograph, 2010



Deterioration

Figure 70

Deteriorated double joist on north side of brick chimney base.

Watson & Henry Associates photograph, 2010



Figure 71

Double notched joists in basement under Third Build (north) section.

Watson & Henry Associates photograph, 2010



Figure 72

Warm air furnace in southeast corner of basement.

Watson & Henry Associates photograph, 2010



Figure 73

Fuel storage tank, electrical panel and sewer and water connection in southwest corner of basement.

Watson & Henry Associates photograph, 2010



Figure 74

Electrical panel on south wall of basement.

Watson & Henry Associates photograph, 2010



Figure 75

Corrosion on sewer and water service at penetration through west basement wall.

Watson & Henry Associates photograph, 2010



Figure 76

East door in First Build, fixed closed and covered with finishes on the interior.

Watson & Henry Associates photograph, 2010



Figure 77

West door in First Build.

Watson & Henry Associates photograph, 2010

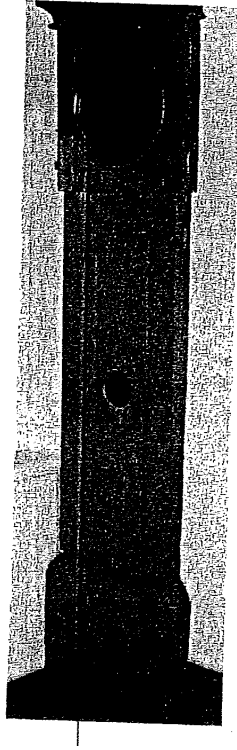


Figure 78

Photocopy of clock from the interior, 1976, showing that at that date the historic natural finish still survived.

Reproduced from Taken to Learn Nailing, Bridgeton Bicentennial Commission, 1976.

APPENDIX A

The Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1995)

**Secretary of the Interior's
*Standards for the Treatment of Historic Properties, 1995***

Standards for Preservation

Preservation generally focuses upon the ongoing maintenance and repair of existing historic materials and features rather than extensive replacement and new construction. The “**Standards for Preservation**” state:

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

**The Secretary of the Interior's
Standards for the Treatment of Historic Properties, 1995**

Standards for Rehabilitation

Rehabilitation is the act or process of making possible an efficient compatible use for a property through repair, alterations and additions while preserving those portions or features which convey its historical, cultural, or architectural values. The “**Standards for Rehabilitation**” state:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

**The Secretary of the Interior's
Standards for the Treatment of Historic Properties, 1995**

Standards for Restoration

Restoration is the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The “**Standards for Restoration**” state:

1. A property will be used as it was historically or be given a new use which reflects the property's restoration period.
2. Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period will not be undertaken.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Materials, features, spaces, and finishes that characterize other historical periods will be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.
6. Deteriorated features from the restoration period will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials.
7. Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence. A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
9. Archeological resources affected by a project will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
10. Designs that were never executed historically will not be constructed.

**The Secretary of the Interior's
*Standards for the Treatment of Historic Properties, 1995***

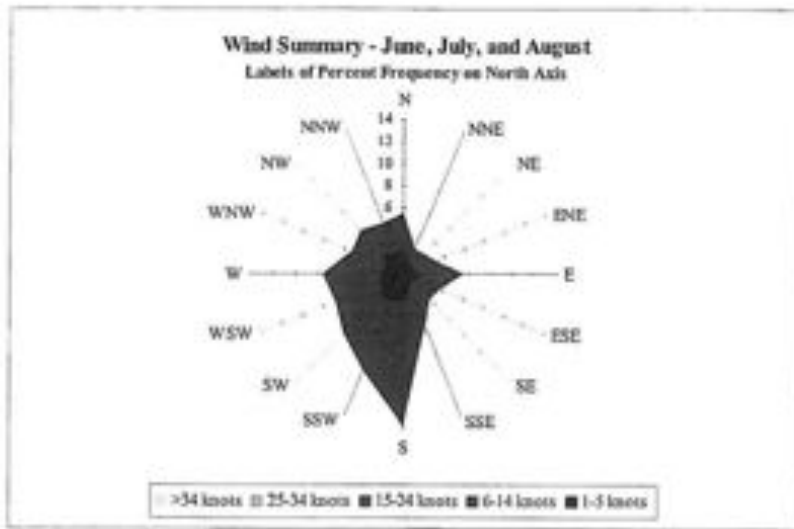
Standards for Reconstruction

Reconstruction is the act or process of depicting, by means of new construction, the form, features and detailing of a non-surviving site, landscape, building or structure for the purpose of replicating its appearance at a particular period of time and in its historic location. The “**Standards for Reconstruction**” state:

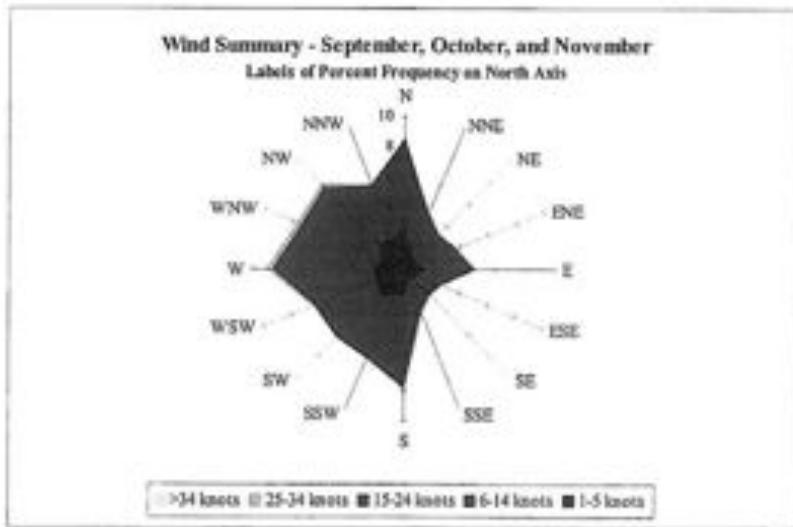
1. Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location will be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures will be undertaken.
3. Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction will be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically will not be constructed.

APPENDIX B

Climate Data



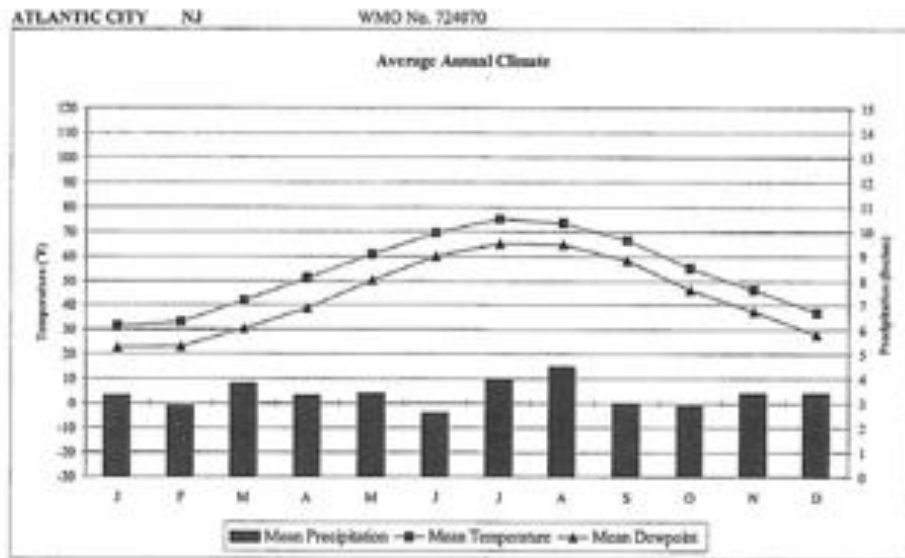
Percent Calm = 8.60

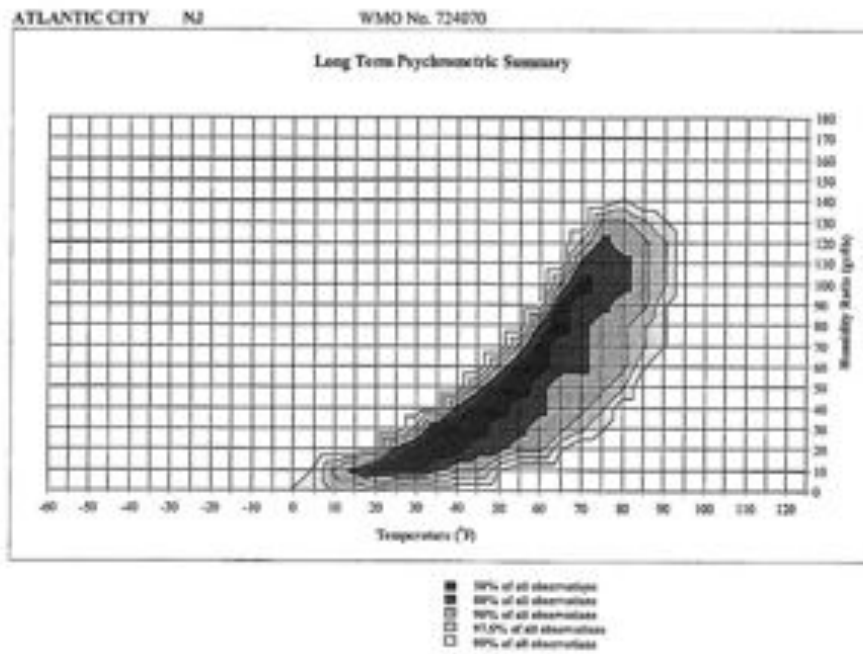


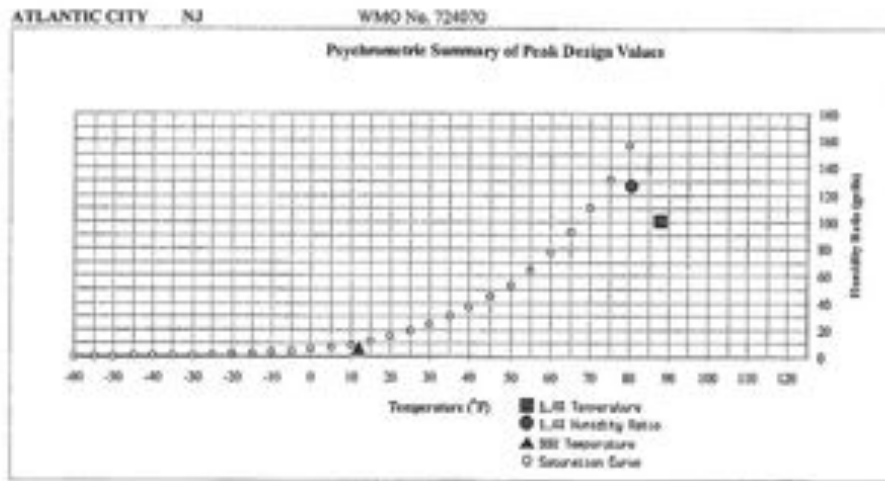
Percent Calm = 9.81

ATLANTIC CITY NJ	WMO No. 734070
Latitude = 39.45 N	Elevation = 66 feet
Longitude = 74.57 W	Average Pressure = 29.93 inches Hg
Period of Record = 1973 to 1996	

Design Criteria Data					
Design Value	Design Value (°F)	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)					
Median of Extreme Highs	96	76	104	10.8	W
0.4% Occurrence	91	75	104	11.1	W
1.0% Occurrence	88	73	100	10.8	W
2.0% Occurrence	86	73	100	10.7	W
Mean Daily Range	19	-	-	-	-
97.5% Occurrence	18	16	9	8.8	W
99.0% Occurrence	12	11	7	9.1	W
99.6% Occurrence	7	6	6	7.9	W
Median of Extreme Lows	-1	-1	4	10.6	WNW
Design Value	Design Value (°F)	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T_{wb})					
Median of Extreme Highs	80	89	135	10.8	S
0.4% Occurrence	78	87	128	10.6	S
1.0% Occurrence	76	84	121	9.9	S
2.0% Occurrence	75	82	118	9.6	S
Design Value	Design Value (gr/lb)	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)					
Median of Extreme Highs	141	83	0.94	11.1	S
0.4% Occurrence	132	82	0.88	9.5	S
1.0% Occurrence	127	80	0.85	8.7	S
2.0% Occurrence	122	79	0.82	8.3	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T_{db} ≥ 73°F	T_{wb} ≥ 67°F
		22	589	461	1517
Other Site Data					
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-ft ² /cfm/yr) Base 75°F-RH 60% Latent + Sensible		
7	3.0	120	2.4 + 0.6		
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)		
56.0	18	15	66		
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.					

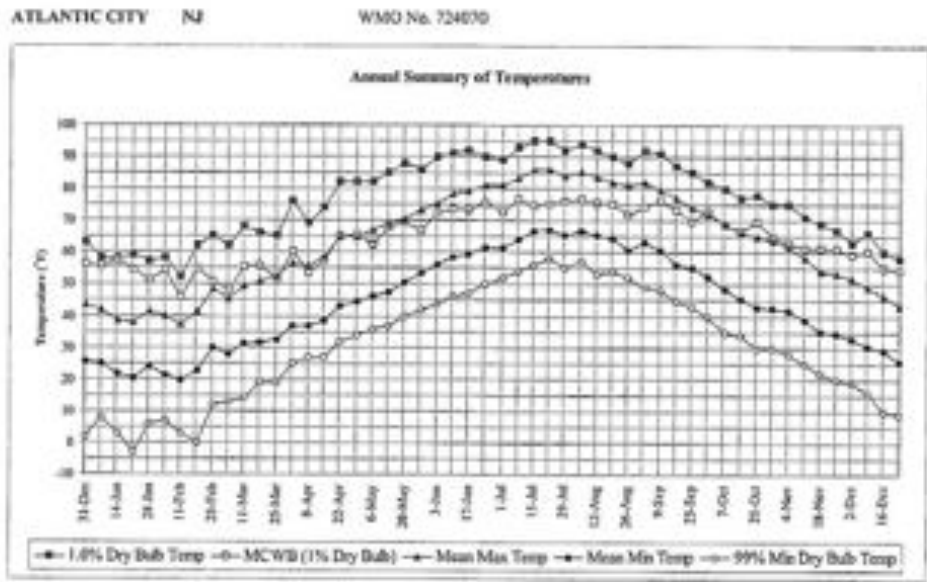


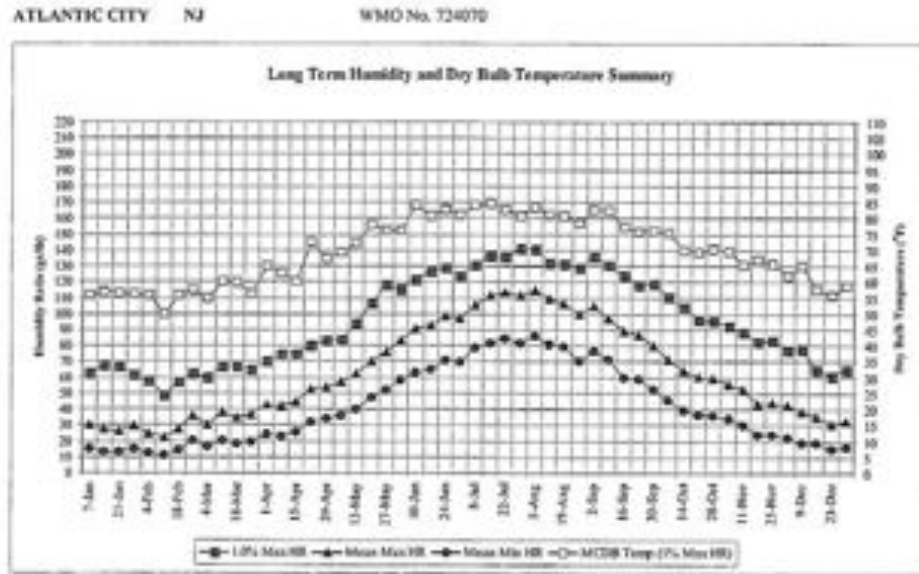


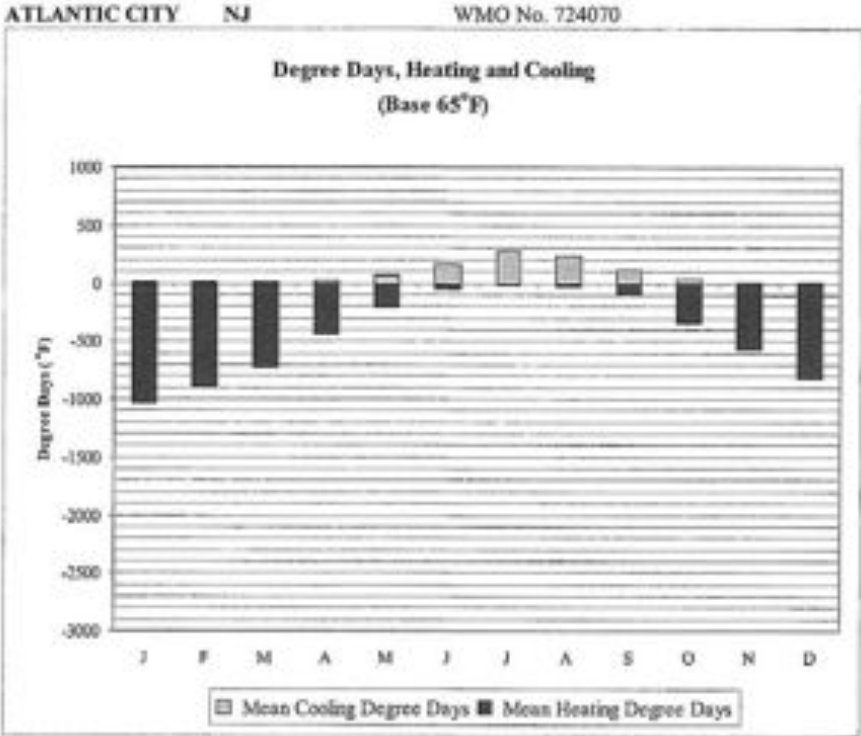


	MCHR (°F)	Enthalpy (Btu/lb)	1.0% Humidity Ratio (gr/lb)	MCHR (°F)	MCWB (°F)	MC Dwypt (°F)	Enthalpy (Btu/lb)
99% Dry Bulb	32	6.6	3.9	106.7	80.3	75.7	94

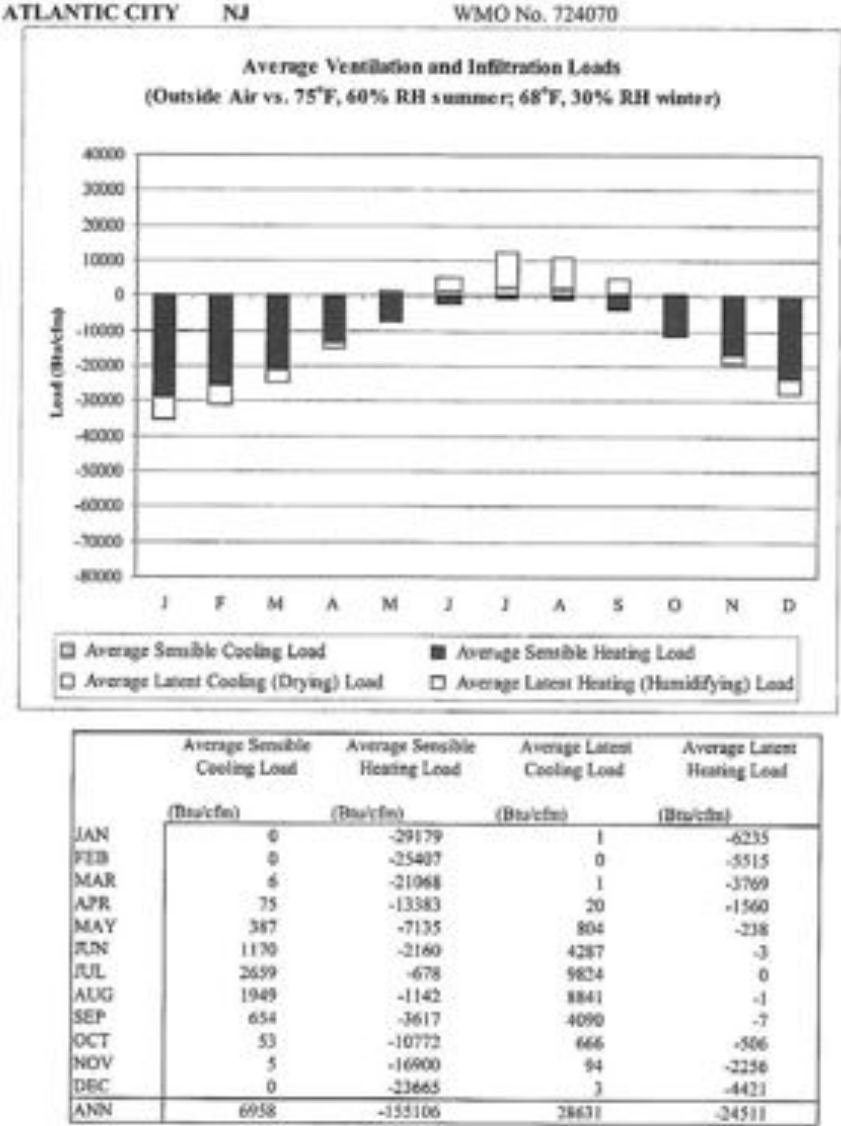
	MCHR (°F)	MCWB (°F)	Enthalpy (Btu/lb)
1.0% Dry Bulb	88	100.8	17.6

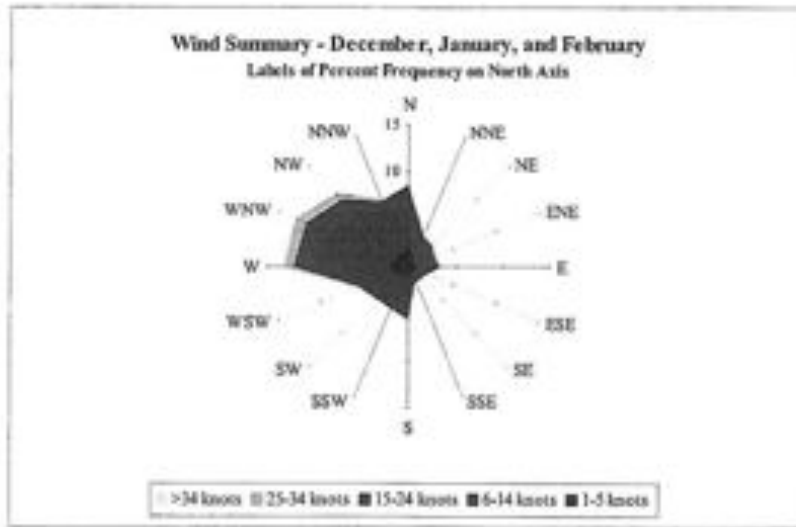




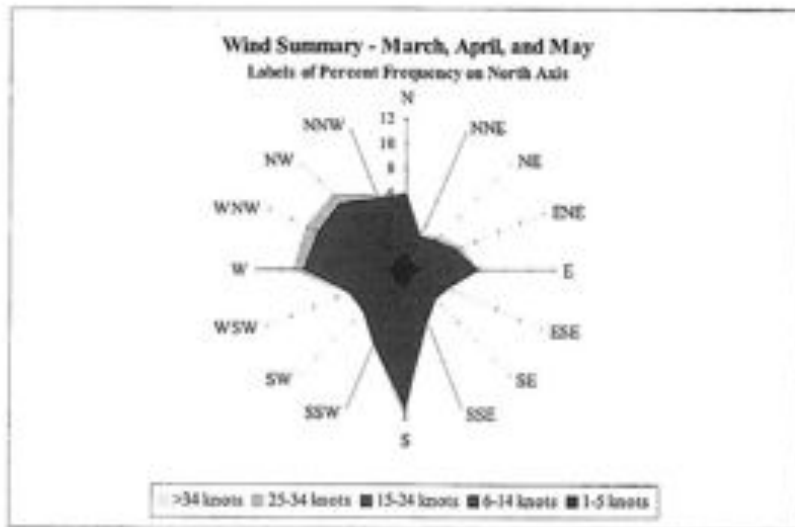


	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1033
FEB	0	896
MAR	2	721
APR	14	433
MAY	60	207
JUN	159	51
JUL	274	14
AUG	233	25
SEP	115	97
OCT	34	336
NOV	4	564
DEC	0	825
ANN	885	5202





Percent Calm = 7.42



Percent Calm = 4.85

APPENDIX C

Lightning Protection Analysis

LIGHTNING PROTECTION ANALYSIS

Cumberland Nail and Iron Company Office, Bridgeton, New Jersey

Reference: NFPA 780 – Standard for the Installation of Lightning Protection Systems 1997 Edition
Appendix H – Risk Assessment Guide

Index Values:

Index	Type	Value	Range	Description
A	Structure	8	1-10	Historic structure
B	Construction	3	1-5	Non metallic/Composition
C	Relative Location	4	1-10	Small structure in area of lower structures adjacent structures or terrain
D	Topography	1	1-5	On flat land
E	Occupancy & Contents	10	1-10	Historic contents
F	Lightning Frequency Isoceraunic Level	5	1-9	31-40

Calculation of Risk Value, R:

$$R = (A+B+C+D+E) / F = 5.2$$

Assessment of Risk:

Risk Index (R)	Risk Value	Risk Value
0-2	Light	
2-3	Light to Moderate	
3-4	Moderate	
4-7	Moderate to Severe	X
Over 7	Severe	

Results:

The Risk Value of 5.2 indicates that there is a moderate to severe risk of loss due to lightning.

APPENDIX D
Workshop Agenda and Summary

**CUMBERLAND NAIL & IRON COMPANY OFFICE WORKSHOP
12 May 2011**

AGENDA

9:00	Introductions, overview of the Preservation Plan	P. Watson
9:15	Historical overview and chronological development	P. Watson
9:30	Present condition of the building	M. Henry & P. Watson
10:00	Tour of the Office	All
10:30	Break	
10:45	What's significant about the Cumberland Nail Company Office?	All
11:00	What are the strengths and assets of the building?	All
11:15	What are the weaknesses and liabilities of the building?	All
11:30	How can we make the best use of this building?	All
12:30	Consensus on the preferred use and vision for the building	All
12:45	Summary of the day and next steps	M. Henry & P. Watson
1:00	Depart	

CUMBERLAND NAIL & IRON COMPANY OFFICE: WORKSHOP SUMMARY

12 May 2011

David Sheppard House, Bridgeton, NJ

A Powerpoint presentation on the history, chronological development, and current condition of the building was followed by a facilitated discussion of the significance, strengths and weaknesses, and best future use of the office:

Significance, Cumberland Nail Office as part of larger story:

- Helps tell the story of Bridgeton and the area and the industrial revolution;
- Only surviving remnant of Bridgeton's 19th C industrial history;
- One of largest factories in the city – employed many;
- Part of what makes us Bridgeton – we are an industrial city;
- This place built Bridgeton – nails, piping;
- Chronologically at the forefront of the Industrial Revolution in US (Paterson founded 1792, but not a success until second decade of 19th C.);
- Story of transportation – Bridgeton important for access to water transportation;
- Responsible for start of daily delivery of mail in Bridgeton and charter of Cumberland Bank;
- Park story – industrial city became ecological pioneer;
- Park was part of the plant from 1840s, built for employees, always open to the public;

Significance, Cumberland Nail Office itself:

- A gateway building then and now;
- Threshold between two worlds – workers probably went through it at least when hired, if not daily;
- Ivy Hall – all students had window on industrial experience – Ella Reeve (Mother Bloor);
- Opportunity to tell story of workers, not just the owners;
- We want to be a destination for a broad range of people – story that includes big homes as well as workers' stories;
- Clock – Cumberland County's oldest public clock – part of communal life (symbolic of change from agricultural to industrial approach to life);
- Surviving early fabric – windows, siding;
- Important that office is in original location.

Strengths and Weaknesses:

Weaknesses:

- Size defines use: too small to house destination collection, to maintain interior environment for collection, and to accommodate restroom facilities within;
- Taken for granted by Bridgetonians – not aware of what a treasure it is.

Strengths:

- Small size can be strength: small museum can be well done – forces focus;
- Small size makes it realistically achievable museum and financially manageable for Bridgeton;
- Significant amount of public awareness within the city – not jump-starting a new endeavor;
- Could be part of history trail: Cumberland Bank (library), Ferracute, Nail Museum: hub for larger narrative;
- Central location, parking, park-like location – easily a destination;
- Integrity of original fabric;
- Already a public building, within a public setting; park restroom facilities close by;
- Has modern basement of great depth – has potential to be repurposed.

Strength or weakness:

- Lack of information on interior appearance as nail office; this means use is not constrained by interior fabric – allows for exhibits.

Best use of this building:

- Potential dual use: presenting historical story and second use as meeting space;
- Centralizing the historical narrative – gateway point for Bridgeton as destination;
- Hub for city walking tour – would also include Old City Hall, Train Station, Bridgeton Library, historic homes, and how are they all integrated; small centers telling separate stories instead of one large museum to tell all stories would get people walking around town;
- This is a place for exhibits;
- Office use is not appropriate;
- Partial use as gift shop could be appropriate.

How can use and interpretation be organized:

- Will city manage interpretation of the building or will another organization be a partner?
- Possible non-profit partners:
 - Antiquarian League (reconstituted)
 - Bridgeton Main Street
 - Cumberland County Historical Society
 - CHABA – non profit that springs from Bridgeton as largest historic district in NJ:
 - To partner with other institutions;
 - To make Bridgeton a study area and a place to get trained in historic preservation;
 - Could be used for improvement of nail house;
 - Interpretation is included in mission www.historicarts.org.
 - Newly-constituted industrial park center:
 - Could be like Fairmount Park Commission – separate autonomous entity within the city – in but not of it;
 - Responsible for physicality of park – could incur dept – create revenue stream - increase capacity.
- Now in city Recreation Commission – advisory commission to city;
- Staffing, funding, grant application, collections care: not a casual commitment;
- There needs to be a stable steward over time – constant care and maintenance;
- Needs to be open when the public wants to see it (dependable staffing even if by volunteers);
- Identify audience: what is the focus that would attract enough people to make it ongoing and viable?
 - Potential new source of visitors: people interested in industrial history;
- Other buildings in vicinity – Dame’s School, Canoe House, Waterworks – other buildings within sight – all impact future of Nail Office.

Summary:

- Best Use:
 - Historic interpretation;
 - Public space.
- Two ways to go forward:
 - Incorporate where the city is going with the park, or, if that doesn’t happen
 - Bring in a strong non-profit to run it.

APPENDIX E
Conceptual Cost Study

CONCEPTUAL BUDGET
Cumberland Nail and Iron Company Office
 Bridgeton, NJ
 Preservation Plan

Division 16: Electrical											
16-120	Contract new wiring	1	1	1	\$	4,920	\$	2,860	\$	7,780	
16-420	Contract new service entrance	1	1	1	\$	1,640	\$	1,200	\$	2,840	
16-720	Contract intrusion detection system	1	0	5	\$	4,400	\$	3,329	\$	7,729	
16-510	Contract interior lighting	1	0	1.5	\$	1,320	\$	3,000	\$	4,320	
Division 16 Subtotal											
										\$	32,669
Subtotal Construction											
										\$	329,968
20% Contingency											
										\$	65,994
Subtotal											
										\$	395,962
Professional Services											
	Architect fee/gross Compensation @15%									\$	59,194
	Historic paint analysis									\$	2,500
	Archaeological monitoring									\$	2,500
Total Construction											
										\$	460,356
NOTES:											
1. Cost Study is based on local prevailing wage rates.											

APPENDIX F

Room-by-Room Survey Forms

Watson & Henry Associates
 12 North Pearl Street
 Bridgeton, NJ 08302

W&HA Project: 10-010
 Cumberland Nail & Iron Company Office
 Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # 101
 SURVEYED BY: PSW
 DATE: 7/9/2010

SURFACES:

Ceiling: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> GNB	Finish: <input type="checkbox"/> Paint <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <u>NEW</u>
Floor: <u>WOOD 3 1/2 BDG</u>	Finish: <u>POLYURETHANE</u>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
N. Wall: <input checked="" type="checkbox"/> Plaster <u>OPEN</u>	Finish: <input checked="" type="checkbox"/> Paint <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
E. Wall: <input checked="" type="checkbox"/> Plaster <input type="checkbox"/> _____	Finish: <input checked="" type="checkbox"/> Paint <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
S. Wall: <input checked="" type="checkbox"/> Plaster <input type="checkbox"/> _____	Finish: <input checked="" type="checkbox"/> Paint <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
W. Wall: <input checked="" type="checkbox"/> Plaster <input type="checkbox"/> _____	Finish: <input checked="" type="checkbox"/> Paint <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____

Comments: WALLS GENERALLY FAIR TO GOOD, BUT MOSTLY CONCEALED BEHIND CASES

WINDOWS:

E 1 Double-hung Other 6/6 SLIDING/FIXED Original Replace Good Fair Poor _____
 Hardware: SPRING CATCH LOCK

S 2 Double-hung Other 6/6 SLIDING/FIXED Original Replace Good Fair Poor _____
 Hardware: SPRING CATCH LOCK & MODERN SASH LOCK

W 3 Double-hung Other 6/6 SLIDING/FIXED Original Replace Good Fair Poor _____
 Hardware: _____

4 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

DOORS:

From EXT to 101 No. panels 6 Descriptn 6 PANEL, PIECE ADDED FOR SAG Good Fair Poor
 Hardware BUTT HINGES, BOX LOCK, BRASS KNOBS, MODERN MAIL Good Fair Poor
 From _____ to _____ No. panels _____ Descriptn LEAD BOLT, CHAIN, SLOT Good Fair Poor
 Hardware _____ Good Fair Poor

MILLWORK:

Baseboards NOT ORIGINAL - MATCHES RM 103 Good Fair Poor WHERE VISIBLE

Casings DOOR & WINDOW CASINGS MATCH, ORIGINAL Good Fair Poor _____

Mantel _____ Good Fair Poor _____

Other CASE FOR CLOCK INTENDED TO LOOK LIKE TALL CASE CLOCK ON INTERIOR Good Fair Poor SHOULD NOT BE PAINTED

SYSTEMS:

Plumbing _____

Electrical 3 DOWNLIGHTS IN CEILING (NEW) (101 & 102)

HVAC REGISTER IN BASEBD BY DOOR, THERMOSTAT ON WALL OF 101A

Other DISPLAY CASES LIGHTING? CONTACT ON DOOR

COMMENTS:

PUTTY INTACT BUT POOR WORKMANSHIP
WINDOWS NOT OPERABLE 2 1/2" WIDE X, 3 9/16" WIDE HEAD TO SKILL
HATCH IN CEILING FOR ATTIC ACCESS (WAS LARGER
ORIGINALLY FOR STAIR
NOT ORIGINAL FLOOR

Watson & Henry Associates
12 North Pearl Street
Bridgeton, NJ 08302

W&HA Project: 10-010
Cumberland Nail & Iron Company Office
Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # 101A
SURVEYED BY: PSW
DATE: 7/9/2010

SURFACES:

Ceiling: Plaster LAMINATE Finish: Paint _____ Good Fair Poor _____

Floor: VINYL Finish: _____ Good Fair Poor _____

N. Wall: Plaster LAMINATE Finish: Paint _____ Good Fair Poor _____

E. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____

S. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____

W. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____

Comments: _____

WINDOWS:

1 Double-hung Other _____ Original Replace Good Fair Poor _____
Hardware: _____

2 Double-hung Other _____ Original Replace Good Fair Poor _____
Hardware: _____

3 Double-hung Other _____ Original Replace Good Fair Poor _____
Hardware: _____

4 Double-hung Other _____ Original Replace Good Fair Poor _____
Hardware: _____

DOORS:

From 101 to 101A No. panels _____ Description MODERN WID DOOR Good Fair Poor
Hardware MODERN RUB LOCK & SLIDE BOOT Good Fair Poor

From EXT to 101A No. panels _____ Description COMPLETELY CONCEALED Good Fair Poor
Hardware _____ Good Fair Poor

MILLWORK:

Baseboards LIKE 101 Good Fair Poor _____

Casings PLAIN ON 101A SIDE, MATCHES OLD ON 101 SIDE Good Fair Poor _____

Mantel _____ Good Fair Poor _____

Other 3 SIDE - SHELVES IN WALL CAVITY Good Fair Poor _____

SYSTEMS:

Plumbing TOILET, LAVATORY

Electrical SWITCHED LIGHT ON CEILING, PANEL BOX - LOCKED

HVAC HEAT DUCT - VERTICAL - BASEMENT TO ATTIC

Other _____

COMMENTS: _____

Watson & Henry Associates
 12 North Pearl Street
 Bridgeton, NJ 08302

W&HA Project: 10-010
 Cumberland Nail & Iron Company Office
 Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # 102
 SURVEYED BY: PSU
 DATE: 7/9/2010

SURFACES:

Ceiling: Plaster GWB Finish: Paint _____ Good Fair Poor _____
 Floor: RANDOM WIDTH BDS Finish: POLYURETHANE Good Fair Poor _____
 N. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor WHERE VISIBLE
 E. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____
 S. Wall: Plaster OPEN Finish: Paint _____ Good Fair Poor _____
 W. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____

Comments: FLOOR BDS 3 3/8 TO 4 1/2 - ORIGINAL
CUT/PATCH IN FLOOR WHERE SAFE WAS

WINDOWS:

E 1 Double-hung Other 6/6 SLIDING/FIXED Original Replace Good Fair Poor _____
 Hardware: SPRING CATCH LOCK
 W 2 Double-hung Other 6/6 SLIDING/FIXED Original Replace Good Fair Poor _____
 Hardware: SPRING CATCH LOCK
 3 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 4 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

DOORS:

From _____ to _____ No. panels _____ Descriptn _____ Good Fair Poor
 Hardware _____ Good Fair Poor
 From _____ to _____ No. panels _____ Descriptn _____ Good Fair Poor
 Hardware _____ Good Fair Poor

MILLWORK:

Baseboards LIKE 101 Good Fair Poor _____
 Casings LIKE 101 Good Fair Poor _____
 Mantel _____ Good Fair Poor _____
 Other CRACKS ON E & W WALLS Good Fair Poor _____

SYSTEMS:

Plumbing _____
 Electrical SEE 101
 HVAC _____
 Other MOTION DETECTOR

COMMENTS:

Watson & Henry Associates
 12 North Pearl Street
 Bridgeton, NJ 08302

W&HA Project: 10-010
 Cumberland Nail & Iron Company Office
 Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # 103
 SURVEYED BY: PSW
 DATE: 7/9/2010

SURFACES:

Ceiling: Plaster _____ Finish: Paint _____ Good Fair Poor _____
 Floor: WOOD 5/2 BDS Finish: POLYURETHANE Good Fair Poor _____
 N. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____
 E. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____
 S. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____
 W. Wall: Plaster _____ Finish: Paint _____ Good Fair Poor _____

Comments: FLOOR GENERALLY GOOD, BUT TERMITE DAMAGE EAST OF FIREPLACE
PATCH IN FLOOR WHERE SAFE WAS

WINDOWS:

1 Double-hung Other 6/6 Original Replace Good Fair Poor _____
 Hardware: _____
 2 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 3 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 4 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

DOORS:

From _____ to _____ No. panels _____ Description _____ Good Fair Poor _____
 Hardware _____ Good Fair Poor _____
 From _____ to _____ No. panels _____ Description _____ Good Fair Poor _____
 Hardware _____ Good Fair Poor _____

MILLWORK:

Baseboards LIKE 101 Good Fair Poor _____
 Casings _____ Good Fair Poor _____
 Mantel FEDERAL, INSTALLED IN THE 1940S Good Fair Poor _____
 Other ROUGHLY BUILT PLATFORMS IN NE & NW CORNERS
CASES ON N & S WALLS Good Fair Poor _____

SYSTEMS:

Plumbing _____
 Electrical 2 CHANDELIER WITH CANDLE FIXTURES, 3 AIMABLE SPOTLIGHTS
 HVAC 3 VENTS IN CEILING, REGISTERS IN BASEBDS E & W WALLS
 Other MOTION DETECTOR

COMMENTS: WINDOWS LARGER THAN IN 101 & 102
2 7/8 WIDE X 5 9/2 HIGHT - HEAD TO SILL
RAISED BRICK HEARTH

Watson & Henry Associates
 12 North Pearl Street
 Bridgeton, NJ 08302

W&HA Project: 10-010
 Cumberland Nail & Iron Company Office
 Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # B001
 SURVEYED BY: _____
 DATE: _____

SURFACES:

Ceiling: Plaster EXPOSED Finish: Paint _____ Good Fair Poor DEGRADED JOISTS
 Floor: CONCRETE Finish: _____ Good Fair Poor _____
 N. Wall: Plaster CMU Finish: Paint _____ Good Fair Poor _____
 E. Wall: Plaster " " Finish: Paint _____ Good Fair Poor _____
 S. Wall: Plaster " " Finish: Paint _____ Good Fair Poor _____
 W. Wall: Plaster " " Finish: Paint _____ Good Fair Poor _____

Comments: _____

WINDOWS:

1 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 2 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 3 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____
 4 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

DOORS:

From EXT to B001 No. panels _____ Descripts BILCO Good Fair Poor
 Hardware PADLOCK Good Fair Poor
 From _____ to _____ No. panels _____ Descripts _____ Good Fair Poor
 Hardware _____ Good Fair Poor

MILLWORK:

Baseboards _____ Good Fair Poor _____
 Casings _____ Good Fair Poor _____
 Mantel _____ Good Fair Poor _____
 Other _____ Good Fair Poor _____

SYSTEMS:

Plumbing _____
 Electrical BASE BULB ON CEILING
 HVAC _____
 Other _____

COMMENTS: UNDER 103
LARGE SANDSTONE BASE - FOR SAFE - 120N STRAPS

Watson & Henry Associates
 12 North Pearl Street
 Bridgeton, NJ 08302

W&HA Project: 10-010
 Cumberland Nail & Iron Company Office
 Bridgeton, New Jersey

ROOM BY ROOM CONDITION ASSESSMENT

ROOM # 6002
 SURVEYED BY: _____
 DATE: _____

SURFACES:

Ceiling: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> <u>KEYED</u>	Finish: <input type="checkbox"/> Paint _____ <input type="checkbox"/> _____	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor <u>DETERIORATED</u>
Floor: <u>CONCRETE</u>	Finish: _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <u>JOISTS</u>
N. Wall: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> <u>CMU</u>	Finish: <input type="checkbox"/> Paint _____ <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
E. Wall: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> _____	Finish: <input type="checkbox"/> Paint _____ <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
S. Wall: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> _____	Finish: <input type="checkbox"/> Paint _____ <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____
W. Wall: <input type="checkbox"/> Plaster <input checked="" type="checkbox"/> _____	Finish: <input type="checkbox"/> Paint _____ <input type="checkbox"/> _____	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor _____

Comments: _____

WINDOWS:

1 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

2 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

3 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

4 Double-hung Other _____ Original Replace Good Fair Poor _____
 Hardware: _____

DOORS:

From _____ to _____ No. panels _____ Description _____ Good Fair Poor
 Hardware _____ Good Fair Poor

From _____ to _____ No. panels _____ Description _____ Good Fair Poor
 Hardware _____ Good Fair Poor

MILLWORK:

Baseboards _____ Good Fair Poor _____

Casings _____ Good Fair Poor _____

Mantel _____ Good Fair Poor _____

Other _____ Good Fair Poor _____

SYSTEMS:

Plumbing _____

Electrical 2 BARE BULBS ON CEILING, ELECT PANEL S WALL - HIGH

HVAC OIL TANK OLSEN FURNACE BRADFORD WHITE WATER HEATER

Other DOCS AT CEILING

COMMENTS: UNDER 101 & 102
PILASTER AT JUNCTURE BETWEEN 101 & 102 - NOT KEYED INTO WALL
SANDBLAST BASE FOR SAFE
WALLS CANTILEVERED AT TOP
JOISTS USED AS SIDES OF PLENUM

APPENDIX G

New Orleans Charter for the joint Preservation of Historic Structures and Artifacts

New Orleans Charter for the joint Preservation of Historic Structures and Artifacts

- Arising from a concern for the coexistence of historic structures and the artifacts within them;
- Recognizing our responsibility as stewards to provide the highest levels of care for the structures and other artifacts placed in our care;
- Recognizing that many significant structures are used to house, display and interpret artifacts;
- Recognizing that historic structures and the contents placed within them deserve equal consideration in planning for their care;
- Recognizing that technologies and approaches will continue to change, and
- Recognizing that those involved in preservation are part of a continuum, and are neither the first nor the last to affect the preservation of historic structures and artifacts:

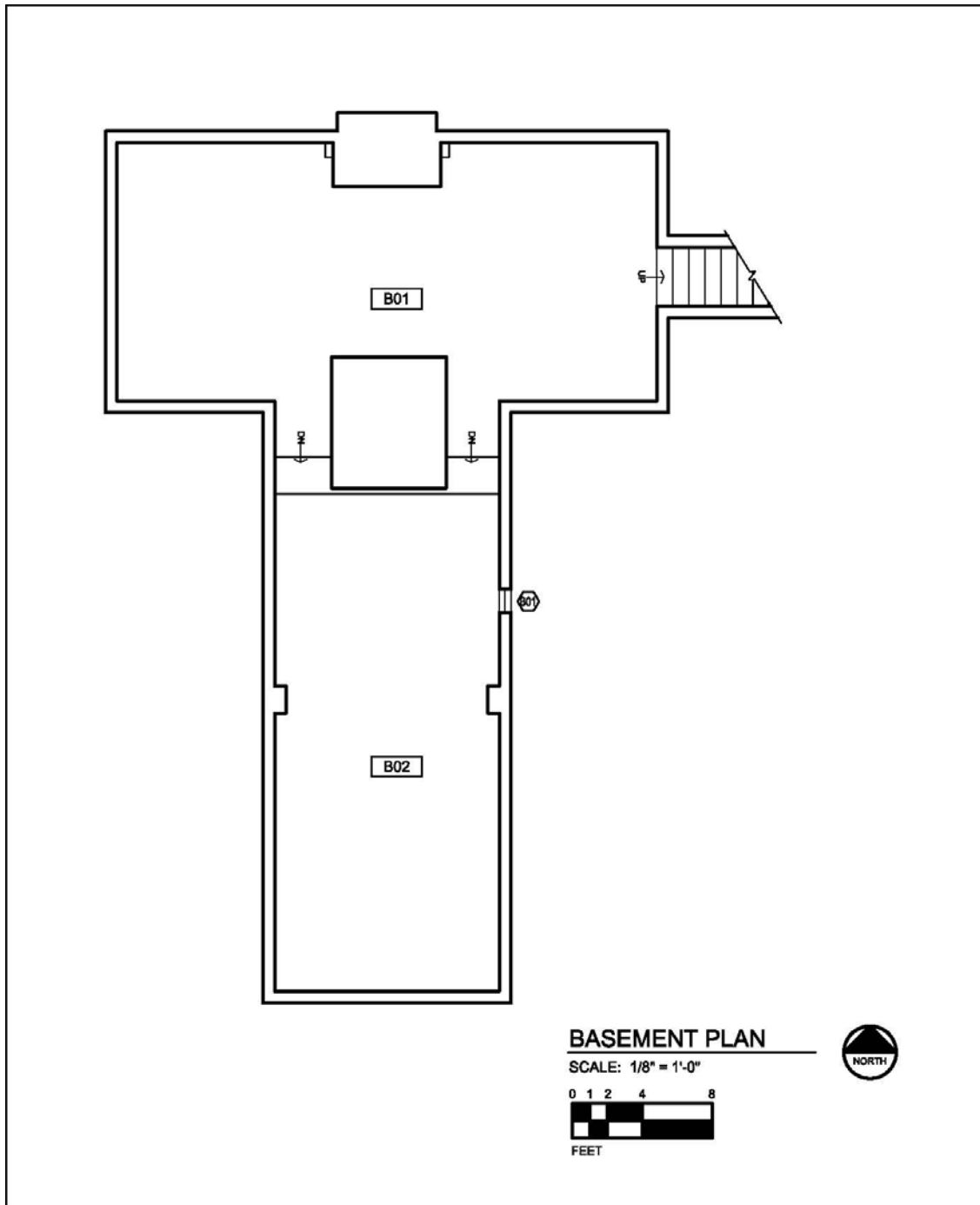
We, therefore, adopt these principles as governing the preservation of historic structures and the artifacts housed in them:

1. Institutions' statements of mission should recognize the need to preserve the unique character of both the historic structure and artifacts.
2. The preservation needs of the historic structure and of the artifacts should be defined only after study adequate to serve as the foundation for the preservation of both.
3. Requisite levels of care should be established through the interdisciplinary collaboration of all qualified professionals with potential to contribute.
4. Appropriate preservation must reflect application of recognized preservation practices, including assessment of risk before and after intervention, and the expectation of future intervention.
5. Measures which promote the preservation of either historic structure or the artifacts, at the expense of the other, should not be considered.
6. Regarding public use, the right of future generations to access and enjoyment must outweigh immediate needs.
7. Appropriate preservation strategies should be guided by the specific needs and characteristics of the historic structure and artifacts.
8. Appropriate documentation of all stages of a project is essential, and should be readily accessible and preserved for the future.
9. The most appropriate action in a particular case is one which attains the desired goal with the least intervention to the historic structure and the artifacts.
10. Proposed preservation strategies should be appropriate to the ability of the institution to implement and maintain them.

Adopted by the Boards of Directors of the American Institute for the Conservation of Historic and Artistic Works (AIC), the Association for Preservation Technology International (APTI), the National Council of State Historic Preservation Officers (NCSHPO), the American Institute of Architects (AIA) Committee on Historic Resources, and the Board of Directors of the American Association of Museums (AAM).

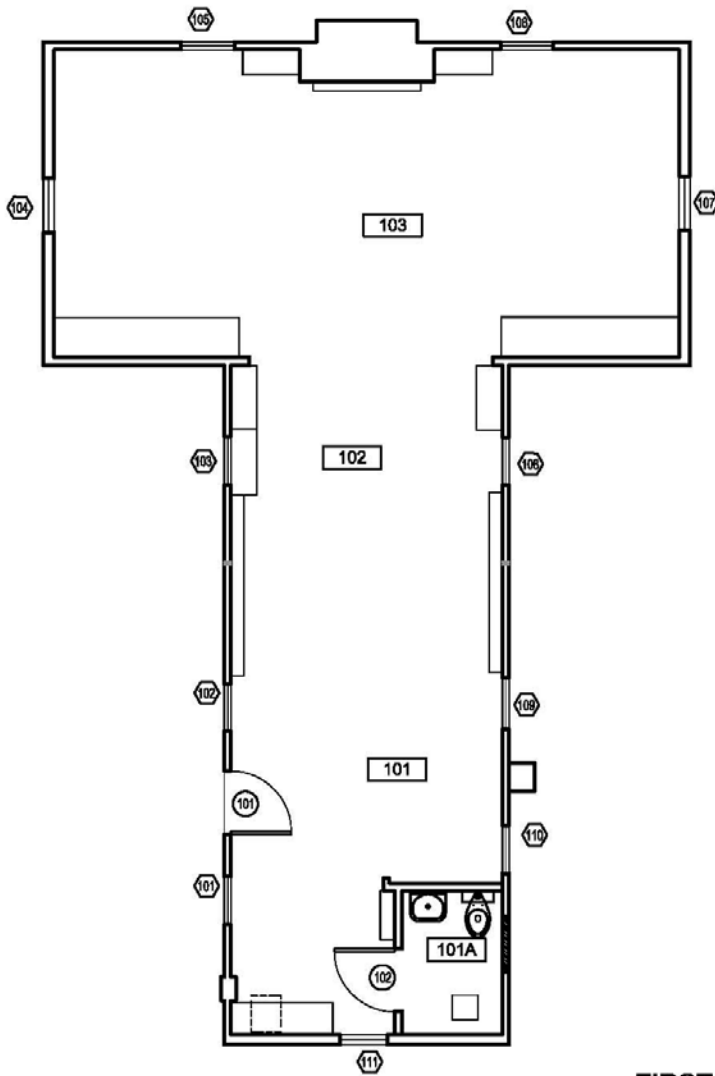
APPENDIX H

Reduced Format Floor Plan



△ ISSUED FOR APPROVAL	BY:	30 JAN 12	△ ISSUED FOR	BY:	
△ ISSUED FOR	BY:		△ ISSUED FOR	BY:	

PRESERVATION PLAN NAIL HOUSE MUSEUM 1 MAYOR AITKEN DRIVE, BRIDGETON NJ Watson & Henry Associates Architects and Engineers		Project Number: 10-100.00 Drawn By:	<h1>SK1</h1> SHEET 1 OF 3
---	--	--	------------------------------



FIRST FLOOR PLAN
 SCALE: 1/8" = 1'-0"
 0 1 2 4 8
 FEET
 NORTH

△ ISSUED FOR APPROVAL	BY:	30 JAN 12	△ ISSUED FOR	BY:	
△ ISSUED FOR	BY:		△ ISSUED FOR	BY:	

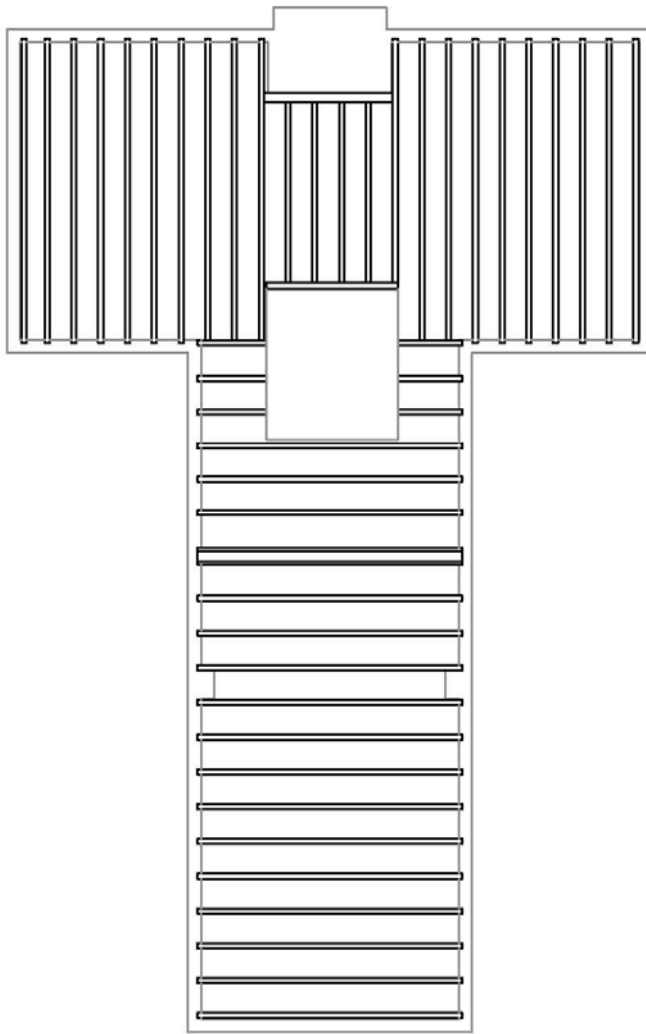
PRESERVATION PLAN
NAIL HOUSE MUSEUM
 1 MAYOR AITKEN DRIVE, BRIDGETON NJ

 **Watson & Henry Associates**
 Architects and Engineers

Project Number: 10-100.00
 Drawn By:

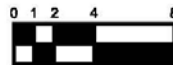
SK 2

SHEET 2 OF 3




**BASEMENT
REFLECTED CEILING PLAN**

SCALE: 1/8" = 1'-0"



△ ISSUED FOR APPROVAL	BY:	30 JAN 12	△ ISSUED FOR	BY:	
△ ISSUED FOR	BY:		△ ISSUED FOR	BY:	

<p>PRESERVATION PLAN NAIL HOUSE MUSEUM 1 MAYOR AITKEN DRIVE, BRIDGETON NJ</p>		<p>SK 3</p>
<p> Watson & Henry Associates Architects and Engineers</p>	<p>Project Number: 10-100.00 Drawn By:</p>	
		<p>SHEET 3 OF 3</p>

APPENDIX I
Maintenance Checklist

**Cumberland Nail and Iron Company Office
Maintenance Checklist**

Year:

Activity	Frequency	Completed											
		Monthly	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Check for broken windows													
Dust and vacuum													
Check basement for moisture/standing water on floor													
Check for burned-out bulbs													
(Until restroom is removed) check for plumbing leaks													
	Semi-Annually	Spring						Fall					
Clean gutters													
Check downspouts for blockage													
Check sealants													
Check exterior paint for peeling													
Change filters on HVAC													
Check for roof leaks/missing shingles/damaged flashing													
Check for deteriorated window putty													
Check for window operability													
Clean windows													
Check behind shutters for leaves, bats, debris													
Check for loose/displaced weatherboards													
	Annually												
General inspection by preservation professional													
Inspect for pests and vermin by pest control professional													
Service HVAC equipment													
Clock inspection by professional antique clock professional													