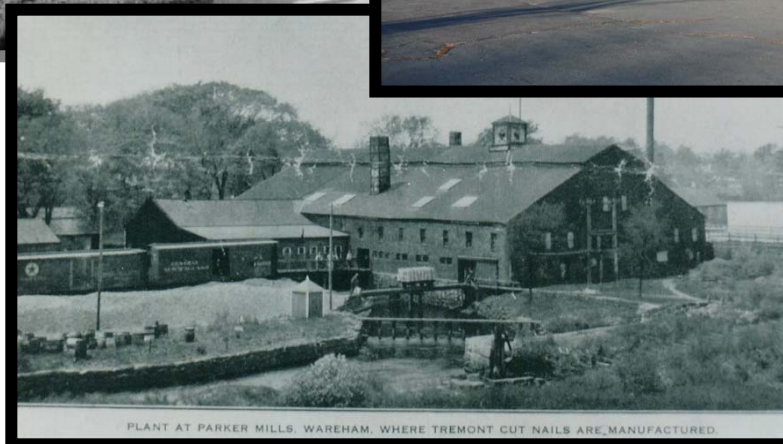


Conditions Assessment & Feasibility Study

Tremont Nail Factory

Wareham, Massachusetts

June, 2009



menders, torrey & spencer, inc.
architecture ■ preservation

123 North Washington Street, Boston, MA 02114

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EXECUTIVE SUMMARY & METHODOLOGY

Executive Summary

Touring the Tremont Nail Company complex was a fascinating, troubling, challenging, and exciting experience for the Menders, Torrey & Spencer team in the spring of 2008. This is what we observed on our first visit to the site.

The complex of wood buildings located next to the mill pond, flume and river that once powered the equipment is deeply evocative. It is not a great stretch of the imagination to hear the sounds of belts and pulleys clattering and clanging, to smell the mineral odor of iron, neat steel and burning charcoal at the forge.

The acquisition of the seven acres of land and 48,000 square feet of usable building space located in eight mostly- vacant buildings was a big step for the Town of Wareham. Today, many wonder if it is too big a nut, a bridge too far. Others are excited about the idea of preserving the site and sharing its heritage with a broad community. Some envision an artist's colony; others, restaurants and shops; others, still, activities linked to the water – recreational boating, boat building, boat selling – who knows? The fundamental questions are – what is appropriate to the site, what uses align with historic preservation objectives and considerations, and what uses can generate sufficient revenue to fix up an aging and derelict building plant and make enough money to keep the boat afloat?



Amongst the challenges are the buildings in relation to water; the very reason for location of the factory here is today a source of concern. The main building is across the road from the mill pond; a flume and natural stream flow from the pond to the river. Water can be seen entering at the bottom of the foundation of the main building. It appears that these seeps have long been a feature of life in the structure. While perhaps acceptable in a fairly rudimentary manufacturing situation, these seeps are a real source of concern when considering alternative uses. And speaking of seeps, the roof is presently leaking and so structurally comprised that replacement of the asphalt shingle roof (the original would have been wood) is impossible until the rafters and purlins have been reinforced or replaced. The main building also tells stories of many adaptations, whether inspired by changing technologies or by structural defects simply corrected are not clear. What is clear is that emergency stabilization is necessary for many of the buildings. It seems that only the recent steel warehouse structure and aluminum clad office building may be off the endangered list.



Today, after performing the Conditions Assessment and Feasibility Study, we have a deep understanding of conditions at the Tremont Nail Factory and know which of the issues observed on that first visit are of real concern, and which can be readily managed. We appreciate the constraints and opportunities of the site, and have envisioned rehabilitation scenarios that would bring new life to the Nail Factory and untold benefits to the citizens of Wareham. We also have an idea of the costs attached to revitalization of the complex and the challenges ahead for the stewards of this important remnant of Wareham's industrial past. This new understanding of the true potential of the Tremont Nail Factory was achieved through the process that follows.

The “Nails” and Bolts of the Study

In September 2008, Menders, Torrey & Spencer, Inc. (MTS) was engaged by the Community Preservation Act Committee of the Town of Wareham to provide a Conditions Assessment and Feasibility Study for the Tremont Nail Factory. The historic Nail Factory complex, comprised of eight buildings on a 7.2 acre site, was acquired by the town in 2004 with Community Preservation Act funds. The Town's intent is to preserve this icon of Wareham's iron manufacturing heritage and to rehabilitate the site as an economically viable community asset.

The Town elected to conduct a site assessment and feasibility study as the first step in the revitalization of the Tremont Nail Factory. The report's overarching objective was to lay the groundwork for reuse by determining what the complex could physically support based on the building conditions, historic fabric and its integrity, and site features and parameters. The study provides a comprehensive assessment of the complex from an architectural and engineering perspective. It begins with a scholarly report on the site's developmental history that brings to light the role the nail works played in 19th century iron making and the regional economy. With history as a foundation, the report then describes structural deficiencies and building code concerns, assesses the historic building fabric, identifies character-defining features, describes and prioritizes preservation treatments, provides estimates for those treatments, lays out a cyclical maintenance plan, and offers three potential adaptive re-use options with associated rough costs.

Water embraces the Tremont Nail Factory site and represents both a benefit and a threat to redevelopment. Parker Mills Pond and the Wankinco River, while critical to the site's aesthetic character, manufacturing heritage, and recreational value, are also responsible for some of the damage the buildings have sustained over 150 years. Keeping water and weather at bay will be essential for building preservation and successful redevelopment. Much of the site and its associated existing impervious paving is within the 100' wetland buffer zone and 200' riverfront area: this “grandfathered” condition offers redevelopment opportunities that might not otherwise exist.

The Nail Factory buildings are in fair condition overall. If the basic stabilization measures recommended in the report are implemented, the buildings will all support light use. The eight buildings do not contribute in equal measure to the significance of the site, however. The nail factory building, office building, and freight building are of crucial architectural and historical importance to the complex; without them, it would be difficult to tell the story of nail manufacture and distribution at the Tremont Nail Factory. These buildings must be retained in any rehabilitative scheme in order to preserve the historic integrity of the complex. The spatial interrelationships, orientation, and density of buildings on the site also contribute to an understanding of the nail works' history and must be considered in any redevelopment plan.

Although examples of the successful rehabilitation of industrial masonry buildings abound, there are fewer precedents for the reuse of historic wood frame factories. The study includes case histories of seven wood structures that were transformed for new use; none, however, boast the vast interior volume that lends the Tremont Nail Factory building its unique and dramatic character. In the reuse concepts presented in this study, the character-defining features of the factory interior – its soaring open vault, exposed framing, rough

finish and machinery – are preserved. With minimal physical intervention, the building could be used seasonally for a craft marketplace, farmer’s market or artisan workshop/gallery. Later, with heating and cooling systems installed, the building could support year-round use as a museum, theater, or restaurant.

Two of the three reuse options incorporate multi-unit housing, both as repurposing of the office building and as new construction sympathetic to the existing buildings in scale, massing, materials, and details. The incorporation of housing in the redevelopment of the Tremont Nail Factory offers the social and economic incentives of Smart Growth mixed use, addresses Wareham’s demonstrated need for elderly and affordable housing, and introduces a permanent population to the site. The third reuse concept focuses on new office space, another expressed need of the community. In all three reuse scenarios, the other historic buildings are repurposed for recreation, retail, and recreation-related retail; these are logical uses that leverage the recreation opportunities presented by the kayak launch, natural open space, and proposed bikeway and river walk.

The implementation plan provides the stewards of the Tremont Nail Factory complex with a prioritized series of tasks leading to successful rehabilitation and reuse. All efforts are directed at “incentivizing” the site for development. Immediate steps include stabilizing the buildings, executing a preservation restriction, improving infrastructure, and focusing community attention on the site. In the next phase, MTS recommends deeper investigation of structural issues identified in the report, understanding the wetlands and river conservation restrictions, performing an economic feasibility study, and research on grant funding and on-site energy generation. On-going activities include building maintenance, outdoor events, seasonal tenant solicitation, and building restoration and rehabilitation as funding allows.

The cyclical maintenance plan itemizes the exterior features of each of the eight buildings and recommends maintenance procedures and intervals for performance of the work. This tool can be used to anticipate and budget for necessary repairs over the life cycle of the building, increasing the lifespan of materials and allowing for amortization of costs. An annual inspection of all buildings is the single most important maintenance activity described in the plan.

The report appendices include copies of primary research materials and other historic documentation; the unabridged structural, civil, and mechanical engineering reports; and a variety of resources on adaptive reuse, including funding sources and economic incentives.

Summary

Grounded realism should be joined with vision and energy in imaging and describing a future for the Tremont Nail Factory. The legacy of this site, just as the necessities that created and sustained it over nearly two centuries, should be celebrated actively – not just remembered. To preserve it is to do more than keep the roofs weather tight – its future must be logical, visionary and compelling. The first step was to purchase the site; the next was to explore its needs and potential through this study. The combination of tradition and innovation embodied by the Tremont Nail Factory and the Town of Wareham’s commitment is both inspiring and challenging. We have been consistently impressed with the interest and commitment of the Community Preservation Committee, the Tremont Nail Master Plan Committee, the Historical Commission, and the Historical Society. Collaboration, creativity and insight amongst this group brought this project to its current place in time, and will be necessary to move it to the next stage.

Methodology

This plan represents a collaborative effort between Menders, Torrey & Spencer, Inc. (MTS) and the Town of Wareham, MA. The Wareham historic community was represented by members of the Wareham Community Preservation Act Committee, chaired by Nancy Miller (project point person for MTS), the Tremont Nail Master Plan Committee, the Wareham Historical Commission, and the Wareham Historical Society. Invaluable input and assistance was supplied by these organizations and by town officials. Barbara Bailey, Mack Phinney, Nancy Miller and Alan Slavin provided substantial background material on the site and its history.

Working public meetings facilitated by MTS were held with members of the Community Preservation Act Committee, the Tremont Nail Master Plan Committee, and other stakeholders on October 30, 2008, February 3, 2009 and April 6, 2009. The final report presentation took place on June 6, 2009. MTS and its consultants made a total of five visits to the nail factory site.

The project team was assembled and coordinated by Lynne Spencer, partner and preservation principal at Menders, Torrey & Spencer, Inc. Patrick Guthrie, project manager for MTS, directed on-site investigations and orchestrated the planning efforts. With assistance from Lynn Smiledge, he prepared the architectural conditions assessment survey, cost estimates, and reuse option scenarios. Lynn provided the comparative site studies and resource list and assisted with final assembly of the report. The MTS team synthesized the reports of consultants and prioritized the recommended work. Consultant reports are included in their entirety in the appendices to this report.

Sara Wermeil, PhD, industrial archaeologist, prepared the developmental history of the Tremont Nail Factory property and provided the Wareham historic community with a number of undiscovered primary sources. John Bologna of Coastal Engineering and his team of engineers conducted the structural and civil engineering assessments of the site and individual buildings. Michael Vlachos of Vlachos Associates reviewed the extant mechanical building systems, including heating, plumbing, electricity and life safety systems.

The final report is issued both as a printed document and in electronic format as a portable document format (.pdf). Ten copies were delivered along with the compact disc.

A. DEVELOPMENTAL HISTORY OF PROPERTY

Developmental History of the Tremont Nail Factory

The business and site development history which follows was prepared by historian and industrial archaeologist Sara Wermiel, PhD. It draws on published sources – most importantly, nineteenth-century local histories and directories of iron manufacturers, and secondary sources on nails and nail-making. Dr. Wermiel did research in the large collection of Parker Mills/Tremont Nail Co. business records at Baker Library Historical Collections, Harvard Business School. Her report also draws on resource materials supplied by the client, including assessing records and newspaper clippings covering the more recent events connected with the site, and an interview and tour of the site with Gary Franklin, a Tremont Nail Co. employee.

History of the Former Site of Tremont Nail Company, Wareham, Mass.

Sara E. Wermiel, PhD

January 15, 2009 revised



Tremont Nail Company—Parker Mills Factory, c 1910



Tremont Nail Company, 2008

History of the Former Site of Tremont Nail Company, Wareham, Mass.

Introduction

The focus of this report is a history of the site at 8 Elm Street in Wareham, which includes the factory, office, and outbuildings last occupied (2006) by Tremont Nail Company (TNCo). Although identified as the TNCo site, several of the buildings on the site pre-date the arrival of this company, including the most historic structure, the large wooden factory. This, along with the office building and large freight house, were built by an earlier iron manufacturing company, Parker Mills. Founded in 1845, Parker Mills occupied the Elm Street site as well as an ironworks at Tihonet, at the south end of Tihonet Pond. Meanwhile, Tremont Nail Company has its own history apart from the Elm Street site. It began in West Wareham in 1858, when it took over the works there of the Tremont Iron Company. In 1887, TNCo acquired the Elm Street site and made the former Parker Mills plant its nail department. Thus, in order to present a comprehensive history of the site, this report traces both the development of the Elm Street property from its beginnings as a mill site, and also of Tremont Nail Company and its predecessor, Tremont Iron Company, although they began elsewhere.¹

A key finding of the research is that there were many connections among various New England iron manufacturers in the nineteenth century, especially among the entrepreneurs in southeast Massachusetts. The importance of the iron masters to the development of New England's economy in that century has not been sufficiently explored. These iron men promoted railroads and founded banks to aid their businesses – infrastructure and institutions that supported the growth of the region's economy generally. Their business connected them with national and international markets: they sold products through agencies in Boston and New York to hardware customers around the world, and they brought raw materials in from Canada and Europe. In the late nineteenth century, the companies faced stiff competition and obsolescence, as nail technology changed. This was the beginning of the end of most of the cut-nail companies, and New England's companies in particular. Tremont Nail Company soldiered on and adapted, and remarkably, continues operating today, although at a much reduced scale.

The extent of iron manufacturing in nineteenth-century New England is difficult to imagine now, since so much of the physical evidence of it has disappeared. The TNCo site in Wareham is a rare survival of this industry. As such, it is significant not only as a representative of a business that once dominated the town of Wareham, but of an industry that developed railroads, whose principals invested in machine making and other regional manufacturing companies, and that helped sustain Boston as a commercial center. Any interpretation of the TNCo site should include the larger context of the region's iron manufacturing industry and its role in the region's and nation's economy.

Part 1. History of the Elm St. Site Before TNC's Acquisition in 1887

Mills at the Elm Street Site Before the Formation of Parker Mills

Hard as it is to picture Wareham as a flourishing iron manufacturing center, until the late nineteenth century, it was. An 1837 survey of manufacturing in Massachusetts found six nail factories in Wareham. They employed 345 hands and had over \$1 million in capital invested – by far the largest industry, with the most valuable assets, in the town. There were, in addition, two iron rolling mills, employing 50 hands, with assets valued at \$125,000.² A decade later, according to a gazetteer published in 1846, the town contained “four rolling mills, three puddling mills ... and four extensive nail and hoop factories, which use not less than 10 thousand tons of iron annually,” as well as “furnaces for castings.” A reason the town proved an attractive place for manufacturing, this book suggested, was its rare combination of abundant water power and good navigation.³

A site that exemplifies this combination of water power and water access is the former plant of Tremont Nail Company (TNC) at the south side of the mill pond, Parker Mills Pond. Located on the Wankinco River, which flows into the Wareham River and on to Buzzard's Bay, the site has been used for mills since the late eighteenth century. According to a historian of the town Noble Warren Everett, his ancestor Rev. Noble Everett (the town's minister) leased the water privilege at this place in 1796 and promptly built a fulling mill. (This is a traditional type of mill for finishing woolen cloth, to make it tight and water-repellant.) Rev. Everett operated the fulling mill until his death in 1819.⁴ Everett also wrote that the first cotton factory in Wareham was built in 1812 “on the Wankinco River at the lower dam,” which would be the TNC site. He does not say who built this second mill; it lasted less than a decade, owing, he wrote, to poor quality construction and rudimentary machinery. Everett is the source of the comment that this cotton mill was “partially burned” by “the English” in 1814.⁵ The mill was repaired and continued operating after the fire, and the fire was not the cause of its failure. But the British landing has been embellished by writers over the years, until the ramshackle cotton mill became a target for the British Navy during the War of 1812. Other accounts say an ironworks at the site was the target, although no ironworks existed there at the time.⁶

Iron manufacturing began on the site some time between 1819 and 1822, when Isaac and Jared Pratt came to Wareham to start a nail manufacturing business. Jared Pratt (1792-1864) had experience in iron manufacturing. Born in Bridgewater, an early center of wrought nail production, he clerked in a nail factory before forming a company with his uncle Isaac (1776-1864), who was a farmer and merchant from Middleboro. Initially they slit iron into nail rods and put it out to households to make into nails. But soon, organized as I. and J. Pratt & Co., they built a plant to roll nail plate and produce nails with machines powered by water, using the waterpower at the Elm St. site in Wareham.⁷

The machines I. & J. Pratt & Co. put in their new factory were ones designed by Jesse Reed; these were “one operation” machines that cut and put a head on nails. One operation nail-making machines were the holy grail of inventors in the late eighteenth and early nineteenth centuries. Inventor Jacob Perkins was the first to use such a machine in

New England, in factories in Byfield and Amesbury, Massachusetts. A third early enterprise, Salem Iron Factory, also made nails using a one-operation machine invented by Nathan Read, beginning around 1797. But these machines were temperamental and required frequent adjustments. In the first decade of the nineteenth century, an improved Perkins machine and one designed by Jesse Reed, both one-operation types, were available. The Reed machine became the most widely used one in the first quarter of the nineteenth century.⁸



In February 1828, Jared, Isaac, and several other men formed a new corporation to own their nail factory, called Wareham Iron Company.⁹ (Appendix 2.) This happened after one of the partners, Daniel Crane, died in 1827, and I. and J. Pratt & Co. acquired his interest. However, I. and J. Pratt & Co. held three-fourths of the company's stock, and the company continued under that name for a time.¹⁰

What may have remained of the old fulling and cotton mills after the site became an ironworks is unknown. Everett wrote that the cotton mill was a rudimentary structure; the fulling mill probably was small and simple as well.

In 1828 or 1829, around the time this new corporation was formed, the company expanded operations by building Tihonet works upstream on the Wankinco River. The Tihonet area (spelled Tionet in the nineteenth century) was sparsely settled. An iron forge stood at a falls on the river, and there Wareham Iron Co. built its new plant. To create a pond and improve the water power, the company raised a stone dam to 28 feet high, which created Tihonet Pond. It also dug a canal from these works to the head of lower pond (Parker Mills Pond) and put in two locks, so that boats could travel between the Tihonet works and Buzzard's Bay. In addition, the company petitioned the state legislature to set the Tihonet section off from the towns of Plymouth and Carver and annex it to Wareham, so that both plants would be in Wareham.¹¹ Everett writes in his history of Wareham that the Tihonet works had "one of the largest and best rolling-mills in the country, a puddling-machine for making iron, and fifty nail-machines." If so, this is historically important: it predates the 1838 boiling furnaces at Phoenixville Ironworks in Pennsylvania, which

historian Amos Loveday credits with being the “first specialized nail factory to produce its own wrought iron.”¹²

But Wareham Iron Co. failed in January 1834. A couple years later Jared moved to Harrisburg, Pennsylvania, where he started an iron business. Isaac returned to his farm in North Middleboro.¹³ However, Isaac’s children continued to be involved with iron manufacturing in Wareham.

Several New Bedford men – John Avery Parker, William Rodman, and Charles W. Morgan – took over the ironworks.¹⁴ An enterprising capitalist, John Avery Parker (1769-1853) was involved with a variety of businesses, including shipbuilding, banking, cotton manufacturing, and real estate development.¹⁵ Like Parker, William Rodman and Charles Morgan were ship owners, as was Benjamin Rodman, one of the original incorporators of Wareham Iron Company. Parker had owned stock in Wareham Iron Company.¹⁶ Thus, Parker – who later organized Parker Mills – had a connection to Wareham iron manufacturing since at least 1828.

The firm John A. Parker & Son operated Tihonet works but probably not the Elm St. site, because the latter was available to lease to Bartlett Murdock & Sons in 1836. Bartlett Murdock and George Howland had started a rolling mill and nail factory in 1827 on the Weweantit River in South Wareham. That factory, called the Weweantit Iron Company from 1831-38, burned down in 1835. Bartlett Murdock & Sons rented the “works upon the lower dam” – the Elm St. site; it may have intended to occupy this site only while rebuilding its own plant or perhaps planned to keep it, in order to expand. Unfortunately, the fire-prone Murdocks burned down this property, with “a small building with seven nail-machines only escaping.”¹⁷ Because of the fire, it is unlikely that any building on the TNCo site is older than 1836. Moreover, anything that may have survived from the earlier cotton and fulling mills likewise must have vanished at this time.

What happened there for the next ten years, until the formation of Parker Mills, is unknown. Did Parker & Son put up new structures at the site? There is no definite information. It seems unlikely that the company rebuilt at this time, because in 1837 it stopped work at Tihonet and leased that plant. Until the formation of Parker Mills, several companies occupied the Tihonet site.

Despite the accidents and setbacks, nail and iron-making had gained a foothold in Wareham.

Parker Mills on the Wankinco River

In 1845, Parker Mills, a corporation, was formed and took over the two sites – the future TNCo site on Parker Mills Pond and the up-river site at Tihonet Pond. The named incorporators were John A. Parker, Benjamin Rodman, and Thomas J. Coggeshall.¹⁸ (Appendix 3.) The company’s charter allowed it to manufacture various things – apparently the investors wanted to keep their options open. Nevertheless, the company continued in the iron business. To the original three incorporators was added a fourth principal investor, Samuel B. King. These men immediately sold shares in the company, and among the investors were Bridgewater, Massachusetts iron men, including Jacob Perkins (not the Essex

County Perkins), Increase Robinson, and, most importantly for the history of Parker Mills, Nahum Stetson.¹⁹

A leading entrepreneur and industrialist in New England, Nahum Stetson (1807-1894) was one of those Victorian businessmen whose vast range of activities, interests, and accomplishments defies belief. A genealogy described him as “a man of indefatigable industry, and distinguished business talent,” and in Stetson’s case, this seems to be no mere flattery.²⁰ Born in East Bridgewater, Stetson had an average education for the time, and after completing his schooling went to Boston to work in a mercantile house. In 1825, at age 18, he was hired by the Bridgewater merchant and manufacturing firm Lazell, Perkins & Co., where his father Abisha was a partner. This firm owned an iron manufacturing company in Bridgewater that had been in business since 1785. In 1825, the company was incorporated as Bridgewater Iron Manufacturing Company, although it continued to use the name Lazell, Perkins & Company. Nahum rose through the ranks, and when Nathan Lazell died in 1835, he became treasurer. Stetson became an important player in the region’s manufacturing industry; he was made financial overseer of several iron companies, including Weymouth Iron Company. For a couple years (1837-38), he was in charge of erecting the plant for this company in East Weymouth, and then served as agent and treasurer. He also was president of the Dean Cotton-Machine Company of Taunton (founded 1848) and an incorporator and director of Taunton Locomotive Works. He owned the Providence Iron Co., in Providence, R. I. and was a director of the Old Colony Iron Works of East Taunton. He promoted and helped found the Fall River Railroad and was a director of the Cape Cod Railroad.²¹



In 1843 or 1846, Stetson came to Wareham to build works for Tremont Iron Co. in West Wareham. The company erected the high dam at Tremont Mill Pond.²² Stetson then became agent and treasurer of the company, a position he held until c 1850.

It was around this same time, c 1845, that Parker Mills’s factory at Wareham Centre – the large wooden building later owned by Tremont Nail Company – was planned and

constructed. Determining the date of construction of any structure from the surviving record books of Parker Mills is complicated because Parker Mills owned the two sites, called the Tihonet Works and Centre Nail Factory, and the records do not specify for which place any particular expenditure was made.²³

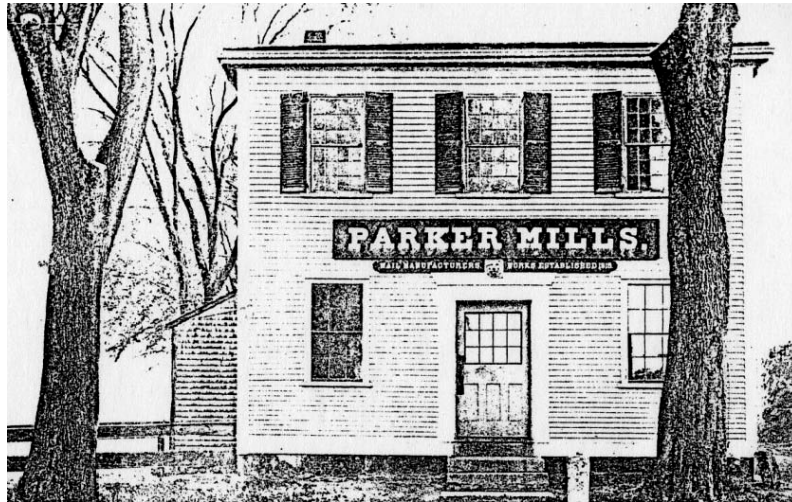
The Tihonet plant apparently was the first to be repaired and improved. It was still functioning in 1845: Warren Murdock & Co. paid rent on it, and Parker Mills insured a section of the rolling mill. Moreover, by the fall and winter, 1845-46, the company was purchasing raw materials needed for an ironworks, like scrap iron, pig iron, and coal, which were most likely used in the furnaces at Tihonet. Some sort of construction was taking place beginning in 1845, and the record books show total expenditures for Tihonet improvements and no such entries for the Centre Nail factory. The company's journal for 1845 shows purchases of building materials: brick, plank, lime & cement, shingles, laths, cedar posts, white lead, lumber, boards, glazing, sashes, and of course, nails, purchased from J. B. Tobey & Co.'s South Wareham factory and Tremont Iron Company. In the summer and fall of 1845, the company paid for carpentry and plastering work, and for boarding men (presumably the construction workers). A turbine wheel was brought in from Fall River. In September 1845, William A. Davis was paid a large bill for plastering: he may have worked on the dwellings that Parker Mills put up. By November 1845, some of the tenements were complete and rented (again, whether at Tihonet or Wareham Centre is uncertain). However, improvements continued at Tihonet through 1847.²⁴

The Centre Nail Factory appears as an item with large expenditure amounts connected with it in late 1847 and early 1848. In the spring and summer of 1847, there were many payments for work on a waterwheel and for millwrights. Bricks were shipped to Parker Mills from Somerset Potters Works, which manufactured firebrick, tiles, and bricks of various shapes. The bricks could have been used to build the tall chimneys or blacksmith shop at the Centre Nail Factory, or in the furnaces (or at Tihonet). Much of this material came by ship because the Cape Cod Branch Railroad (later Cape Cod Railroad), which served the Wareham Centre site, was only chartered in 1846. Materials transported over land, or between the site and the wharves, were carried by gigs, buggies, and wagons. The company also bought nail machines and other equipment for the factory. (Appendix 8.) Improvements at the Centre Nail Factory continued into 1849; there were payments in January 1850 for a flywheel and pulley.²⁵

Given the evidence of construction occurring in 1847 (the numerous expenditures for millwrights) and that the factory apparently was not entirely finished as of 1849, it seems that Noble Warren Everett's date for the factory, 1848, can be taken as reliable.²⁶ We can also assume the office building went up at this time. There is less evidence for the date of the freight house on the Wankinco, but most likely it too dates from c 1848: since there was no railroad initially, the fact that it is designed for water access suggests an early date. By 1850, the Cape Cod railroad served the site. Also, although they are not part of the site, tenement houses and a boarding house were completed. Probably the mill pond got its present name, Parker Mills Pond, at this point.

In the 1850s, Parker Mills was a going concern. Nail plate was rolled at the Tihonet plant and floated down to the Centre Nail Factory, where it was cut into nails. The firm also rolled hoops initially, used to make kegs. The firm sold its products to hardware merchants

through agencies in Boston and New York City. It could make nails to suit the preferences of customers in different markets. A merchant in New York City sent a sample of nails he asked the factory to make, “The F nails such as you make will not sell here.” Nathan F. C. Pratt of Lazell, Perkins, & Co., who early on represented Parker Mills in Boston, sent samples but asked that the nails be made slightly smaller, “The slaters all complain of the *size* of these nails.” Nails were made for various purposes, and the company also made spikes.²⁷



Source: *Tremont Cut Nails, Centenary Catalogue, 1819-1919* (Tremont Nail Co.)

Office building, Parker Mills, later Tremont Nail Company, Wareham Centre, c 1919

The mill bought pig iron and scrap iron – old castings and railroad iron – and even German and English steel, which it processed and rolled into plates for the nail machines. In this early period, it bought Cumberland, Lehigh, and Virginia coal as well as Pictou coal from Nova Scotia. Enoch Pratt & Brother of Baltimore was an early supplier of iron. Enoch and his brother David Pratt were sons of Isaac Pratt and brothers of Isaac, Jr. and N. F. C. Pratt, who were involved in companies connected to Nahum Stetson (in 1843, Isaac, Jr. became the agent for Weymouth Iron Co., in which Stetson was an investor). Parker Mills bought grindstones from Lombard & Hall in Boston.²⁸ In 1850, the company exhibited its nails at the Sixth Exhibition of the Massachusetts Charitable Mechanic Association. Several other southeast New England nail-makers did likewise: J. B. Tobey & Co. of Wareham displayed its nails, as did Weymouth Iron Co., Lazell, Perkins, & Co. of Bridgewater, and Providence Iron Company.²⁹

In contrast to the high turnover in ownership among nail companies in Wheeling, West Virginia, at Parker Mills principals remained for many years. In the first couple years of Parker Mills's existence, Thomas Coggeshall, one of the three original incorporators, held the job of treasurer. Nahum Stetson became agent around 1847 and remained in this key position until the property was sold to Tremont Nail Company in 1887.³⁰ William A. Caswell superintended the Tihonet works from the start until it closed the summer of 1878. William presumably was related to Nathan Caswell, who had been one of the original incorporators of Wareham Iron Company, meaning that the Caswells too had been involved with the site

since 1828.³¹ Parker Mills's resident agent was Caleb C. Sprague, who also remained with the company until the end.

Parker Mills carried on a successful business until 1857, at which point the nation sank into a severe economic depression. By 1858, Parker Mills had largely stopped operating. At this point, with its 84 nail machines, it was one of the larger nail-making companies in the United States. Tremont Iron Co. had 90 nail machines and Wewantit Mill No. 1 (in South Wareham) had 32 machines. J. P. Lesley, in his 1859 *Iron Manufacturer's Guide*, wrote that the company had, in addition to the nail machines, 16 furnaces and 3 roll trains, all driven by water power.³² (Appendix 4.)

Business picked up during the Civil War, and through the end of the 1860s and opening of the 1870s, the company prospered; but the prosperity ended with the onset of another economic downturn.³³ In the depression that followed the panic of 1873, Parker Mills slowed down, periodically stopping operations. At the end of 1873 and into spring of 1874, Parker Mills's payroll lists about 160 employees. Most of these were mill hands; there were about 34 nailers (operators of nail machines). In mid-1874, the number of employees dropped to about 90-100, with no nailers. But in October, the nailers were back. Then they were laid off again. This pattern continued through 1875 and 1876: nailers were hired and then laid off. Through 1877 and the first part of 1878, they were rehired less frequently. What the employees did in this period, with the ups and downs, and uncertainty about the future of the firm, can only be imagined.

Finally in the summer of 1878, the mills shut down. Only a handful of workers were employed from then through 1882. The sporadic output meant that hardware merchants and customers in California could not readily get their "favorite brand," Parker Mills nails.³⁴



Source: Susan Pizzolato and Lynda Ames Byrne, *Wareham (Images of America)* (2002)

Tihonet Works in the late 1880s

During the idle years the company continued to insure its property, and surviving insurance policies from this period give a glimpse of the sites. In 1880, Parker Mills insured at Wareham Centre, "frame Nail Factory Buildings, including the frame Blacksmith's Shop adjoining on the west, and the frame Machine Shop, so called, adjoining on the south side and run by water." (A policy from 1864 listed the same inventory, except that the ell on the south side served as a scrap iron house.) The footprint of the factory that stands today is

essentially the same as the building in the nineteenth century. It is also interesting that the factory still had only water power. At Tihonet, Parker Mills insured a rolling mill made of connected frame buildings, a steam engine and associated apparatus. The company insured its machinery and stock, but the policies did not cover its office building, warehouses, tenements, or cooper shop.³⁵ (Appendix 9.) A directory of rolling mills from this time listed Parker Mills as having 6 double puddling furnaces, 2 trains of rolls, and one hammer – these would be a Tihonet – and 75 nail machines and 4 heating furnaces, at the Wareham Centre Factory.³⁶

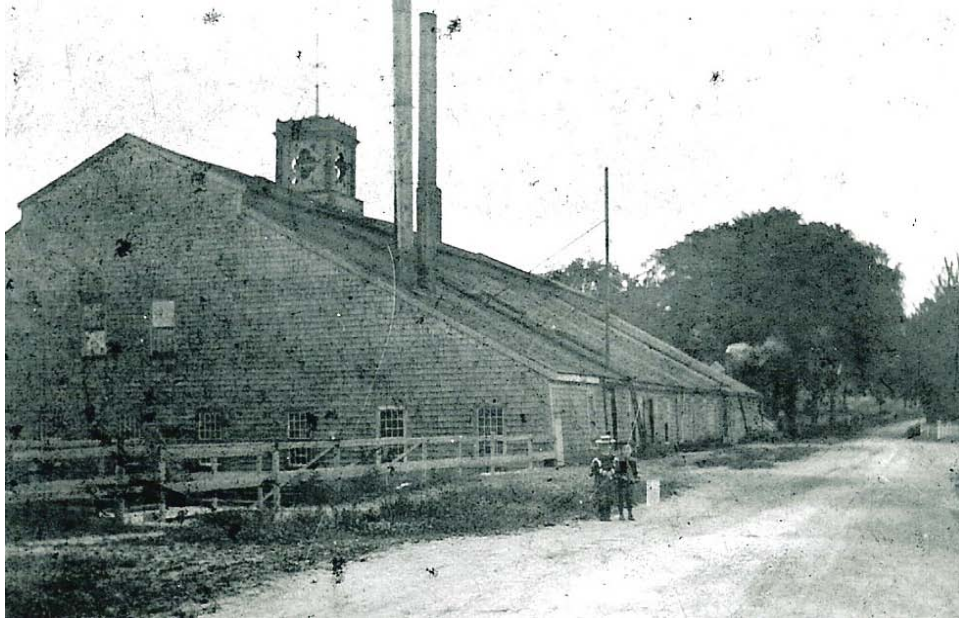
Parker Mills to Tremont Nail Company

Various factors contributed to the misfortunes of Wareham's nail companies. The performance of the economy overall was no help: not long after the nation's economic ship righted itself at the end of the 1870s, it foundered again, in the 1880s. Moreover, a slowdown in railroad expansion and thus the demand for rails during the 1870s depression, and from 1882-1885, and then again at the end of the 1880s, hurt iron manufacturers generally. More specific to the nail industry, cut nail output increased sharply, by about 75 percent, between 1878 and 1883, making 1883 a high mark in cut nail production. Also at this time, nail manufacturers in the West began to use steel rather than iron nail plate, and all manufacturers had to add or shift to steel to compete. More ominously, wire nails, which had been inconsequential in the market, suddenly became a commercial product in the 1880s. Wire nails were made by cutting wire rods, rather like the way nails were made by hand in the eighteenth century, except by machine and with steel wire. They came on the market following improvements in continuous rod rolling in the early 1880s, which lowered the cost of the steel rod. According to statistics in Swank's *History of the Manufacture of Iron in All Ages*, as a share of all nails produced in the U.S., wire nails rose from about 7 percent in 1886 to about 1/3 in 1890. Cut nail production declined after 1883, which was the period when nail makers laid off workers and cut wages, and workers went out on strike. In 1886, production spiked up to its highest level; after that, output resumed a downward course.³⁷

It was during this turbulent period, in 1882, that Bridgewater Iron Company purchased Parker Mills.³⁸ This presumably was Stetson's solution to the declining value of Parker Mills's assets. After this, production continued to be intermittent. Iron manufacturers in New England struggled to reduce costs to meet the competition. Representatives of Southeastern Massachusetts iron companies, including Bridgewater Iron Co. and Tremont Nail Co., met to coordinate wage reductions. In January 1883, one firm reduced wages of its men by 10 percent; and in December 1884, seven iron companies intended to reduce wages by 10 percent. Workers at the Bridgewater plant went out on strike in July 1886.³⁹ In that year, Parker Mills closed.

But it was not the only one: 1886-87 saw a massacre of Massachusetts iron companies. There had been eleven nail mills in the state, but after 1887, there were only six. Fall River Iron Works (1887); Gosnold Mills, New Bedford (1887); Tisdale Iron Works in East Wareham; and Stetson's Weymouth Iron Co. (1886) closed. Somerset Iron Works was sold to another iron company in 1887, as was Parker Mills.⁴⁰ New England's share of cut nail production dropped: between 1886 and 1888, the quantity of nails produced in Massachusetts fell by half. Massachusetts's cut-nail companies faced competition from western cut nail-makers and from wire nail-makers.

Tremont Nail Company was still standing, and in 1887, it took over Parker Mills from Bridgewater Iron Company. Nahum Stetson, Treasurer, represented Bridgewater Iron Co. for the trustees.⁴¹ Parker Mills was no more.



Source: Wareham Free Library Photo Archive, gift of Donna Barr Truran

Tremont Nail Company at Parker Mills, from Elm St., looking west, c 1895

Part 2. Beginnings of Tremont Nail Company on the Weweantit River

Returning to the early, more prosperous days of iron and nail manufacturing in Wareham, ironworks developed on the Weweantit River at roughly the same dates and took roughly the same form, as those on the Wankinco. Around the time I. and J. Pratt & Co. established a rolling mill and nail works on the Wankinco, Bartlett Murdock & Co. established a rolling mill and nail factory to the west, on the Weweantit River (c 1820). Called Washington Iron Company, this plant was located at the southern end of Tremont Mill Pond. And at about the same time I. and J. Pratt & Co. expanded their operations by building an upper dam and establishing Tihonet works for rolling iron, Bartlett Murdock & Co. built a second dam upstream from their factory, near a village known as England.⁴² There the company established a forge to roll bar iron from scrap iron. Also around this time, Bartlett Murdock (1783-1847) invested in the ironworks downstream at South Wareham, the Weweantit Iron Co., also known as the Pole Works and Tobey's Mill.⁴³ Murdock came from an ironworking family in Plympton (later part of Carver).

But Washington Iron Co. fell on hard times, and in 1832, was sold. Among the parties financially interested in it at this point were John A. Parker and William Rodman.⁴⁴ The property continued to operate, passing through the hands of several owners. Then its career began again to parallel that of the works on the Wankinco. From 1837 to the early 1840s, the plants at Tremont Mill Pond operated intermittently.⁴⁵

In 1845, the same year Parker Mills was incorporated, some Boston men organized Tremont Iron Company (TICo).⁴⁶ (Appendix 3.) Over the next several years, TICo purchased the old works and property at Tremont and England villages. TICo brought in Nahum Stetson to oversee the development of the works. The company raised the dam at Tremont village to 25 feet and modernized the plant, putting in puddling furnaces, a rail mill, and nail machines.

One of TICo's directors, Nathan Carruth, was the president of the recently chartered Old Colony Railroad Corporation – organized to build a railroad between Boston and Plymouth.⁴⁷ Railroads were expanding in Southeast Massachusetts at this time and accordingly, the demand for rails. Carruth intended to sell rails made by TICo to his and other railroads.

And indeed, TICo began rolling rails in 1846 and sold them to the Cape Cod Branch Railroad, Old Colony Railroad, Northern Railroad, and Western Railroad.⁴⁸ This is significant because only a couple years before, in 1844, the first T-pattern rails were rolled in the United States. These famously were made at Mount Savage rolling mill in Maryland, owned by the Maryland and New York Iron and Coal Company. The customer for these rails was the Fall River (Massachusetts) Branch Railroad, which was incorporated in 1844. The year 1846 marks a turning point, when several mills in the United States began to roll T-rails. According to James Swank, contemporary historian of the iron industry and long-serving manager of the American Iron and Steel Association, the first T-rails made in New England were rolled at “Boston iron works.”⁴⁹ There was no company with exactly that name. Moreover, since Tremont Iron Co. also was rolling rails in 1846, it at least shares the honor of being the first mill in New England to roll rails.

However, rails proved unprofitable, so the company turned to manufacturing nails and for this purpose, ordered many nail machines. The company also made hoop iron in the early days, although this too was stopped in the late 1850s. It eventually abandoned the works at England and allowed the dam there to decay.

Thus in the 1850s, the company became principally a nail factory. Around 1858, the mill had 23 furnaces, 3 trains of rolls, and 90 nail machines, and made “nails, hoops, and a few shapes.” (Appendix 4.) Business was good. The company went through a number of agents: Nahum Stetson served until 1850, when William Sampson took over the position. By 1853, Nathan Carruth became agent and remained so until 1858. Around this time, Andrew S. Nye was superintendent of the mill.⁵⁰

The economic depression of 1857 deranged Tremont Iron Co. even more than Parker Mills. In late 1858, it was sold to a new corporation, Tremont Nail Company (TNCo).⁵¹ The new company paid only a fraction of the original cost of the works. Thus, 1858 marks the beginning of Tremont Nail Company, and it was founded at Tremont village in West Wareham, on the Weweantit River. The first officers of Tremont Nail Company were Richard Soule of Boston, president, and Joshua B. Tobey of Wareham, treasurer. Tobey became agent for, and soon president of, the company.⁵²

Now another group of characters important in the history of TNCo, New England's iron industry, and the town of Wareham appear: members of the Tobey family. Their story

begins as early as 1816, when Curtis Tobey (1779-1832) started a cotton mill on the future site of the Wewantit Iron Co. in South Wareham (the Pole Works). His son Joshua Briggs Tobey (1807-1870) served as the agent for this iron company from 1831-38. Then in 1838, J. B. Tobey & Co. bought the iron company and operated it until 1854 (hence Tobey's Mill). J. B. Tobey became an important businessman and local leader in Wareham; he presided over Wareham Bank and Wareham Savings-Bank, and invested in various enterprises. Tobey's wife, Susannah Keith Pratt, was a daughter of Isaac Pratt, former owner of the ironworks at Parker Mills Pond. This marriage in 1835 was probably the first union between the Wewantit and the Wankinco watersheds, which eventually were united under Tremont Nail Company.⁵³



J. B. Tobey cooperated with other iron makers in the region. Along with Nahum Stetson and Thomas G. Coggeshall of Parker Mills, he served on the board of the Cape Cod Branch Railroad Company (chartered 1846). This line, which became operational in May 1848, connected Wareham's iron factories with the world, by attaching to other roads that ran between Boston and Sandwich.⁵⁴

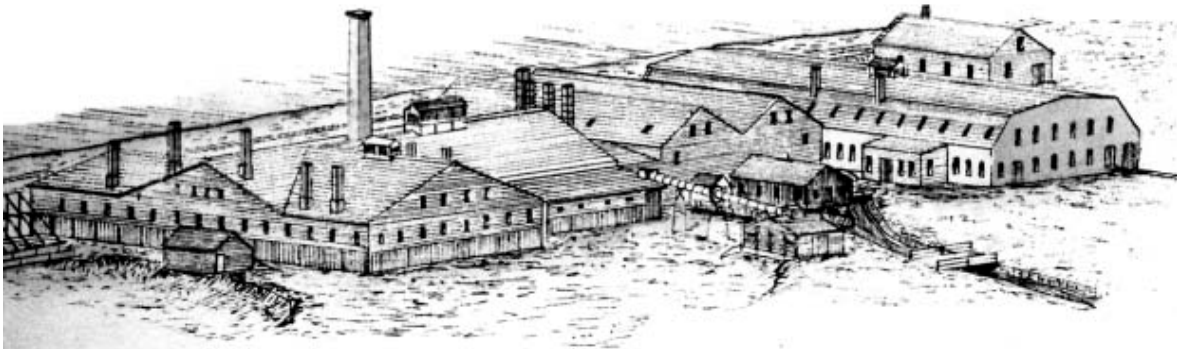
Tremont Nail Co. had been operating for only a couple years when a fire destroyed the works. Thus, in 1860, the company leased what had been Tobey's Mill in South Wareham (at this time owned by Lewis Kinney & Co). Here TNCo operated while rebuilding its plant, and it returned to the Tremont village site in 1867.⁵⁵ After Tremont Nail Co. left, the South Wareham property was purchased and operated by Wareham Nail Co.⁵⁶

Back in West Wareham, Tremont Nail Co. carried on successfully to the end of the 1860s. Tobey brought three of his sons into the business and they took over Tremont Nail Company when he died in 1870. Second son Horace Pratt Tobey (1838-1918) was the most actively involved. After graduating from Harvard College, he worked as the selling agent for the firm in Boston, and while in this city, he built a spike factory in Cambridgeport. Around 1871 Horace became treasurer of Tremont Nail Co. and served in this position during most of his time with the company. His older brother Gerard C. Tobey (1836-1911) graduated from Harvard in the same year as Horace, studied law and worked as an attorney in Boston.

He joined the company following the death of their father, when he took over as president. Younger brother George Oakes Tobey (1841-1916) was an overseer at Tremont Nail Co.⁵⁷

And like Parker Mills, Tremont Nail Company suffered in 1873, as another depression wracked the nation. TNCo's business slowed, and in early 1875, the mill shut down. In 1877, part of the mill was running again and by 1879, it resumed full operations. Still, the company did not prosper at it had in earlier days. In 1882, it paid stockholders a dividend for the first time in two years.⁵⁸

TREMONT NAIL WORKS, WAREHAM. MASS.



Source: "Tremont Nail Works," No. 6938, Barlow Fire Insurance Map, Baker Library Historical Collections, Harvard Business School

Tremont Nail Works on Tremont Pond, West Wareham, c 1881

The company kept up to date. In 1886, it added steel to its nails product, making "combined iron and steel nails." Then TNCo took a really bold step: it invested in a steel plant in order to make its own steel nail plate. Constructed at its West Wareham site, the steel mill took a year to complete. The equipment installed was called a Clapp-Griffiths connector, in which steel was made by a modified Bessemer process. The plant used for the Clapp-Griffiths was comparatively smaller and cheaper than the usual Bessemer steel plant. What made this project risky was that West Wareham was far from the sources of raw materials (iron and coal). But TNCo's owners gambled that there were advantages to making their own steel plate rather than importing it, and that they could sell their steel to regional companies, saving them the cost of transport. Construction of the new mill and revamping of the plant occurred in 1886-87. The mill made its first steel, in a 3-ton converter, in December 1887. It also increased its trains of rolls to 5, for rolling plate for nails and tacks.⁵⁹ (Appendix 10.)

Tremont Nail Co. made another investment at this time: it bought the former Parker Mills from Bridgewater Iron Company, in April 1887. The Centre Nail Factory became TNCo's nail department, and thus the company more than doubled its nail machines, to 173.⁶⁰ This made TNCo one of the largest cut nail mills in the U.S. Tihonet probably had already been abandoned by this time; Parker Mills was getting its nail plate from Bridgewater

Iron Company.⁶¹ Tihonet would have duplicated the operations of the West Wareham plant, and the company was shifting to the steel made in West Wareham.

Part 3. Tremont Nail Company at Parker Mills

TNCo still struggled to keep abreast of the competition. One thing that put New England manufacturers at a disadvantage relative to those in the Pittsburgh sphere was the high tariffs on imported iron and coal. Horace Tobey, TNCo's long-serving treasurer, protested these high tariffs, to which the western manufacturers were devoted. He made the case for reduced tariffs to Washington.⁶² Meanwhile, the company added to its steel-making capacity by building a 20-gross-ton basic open-hearth steel furnace in 1893. The number of nail machines dropped to 150, and its capacity for producing nails declined accordingly, to 200,000 kegs/year.⁶³

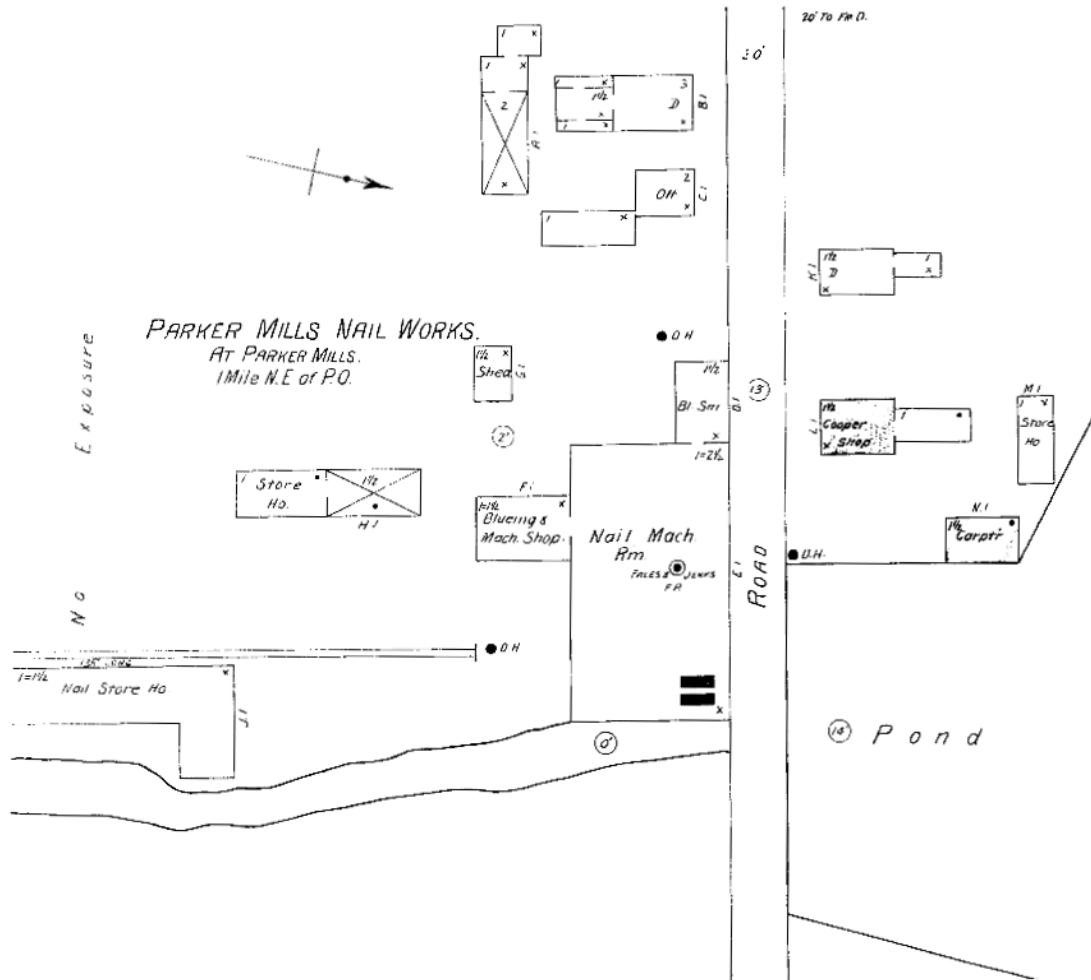
A step Tremont Nail Co. took in the 1890s to diversify, so to speak, was to go into the fish-raising business. In 1894, it received authorization to stock and take alewives, salmon, and shad from Parker Mills and Tihonet ponds, and to construct fishways and outlets from the pond for this purpose.⁶⁴ (Appendix 7.) The physical evidence of this at Parker Mills, along with the old locks, has no doubt disappeared under the new fish ladder.



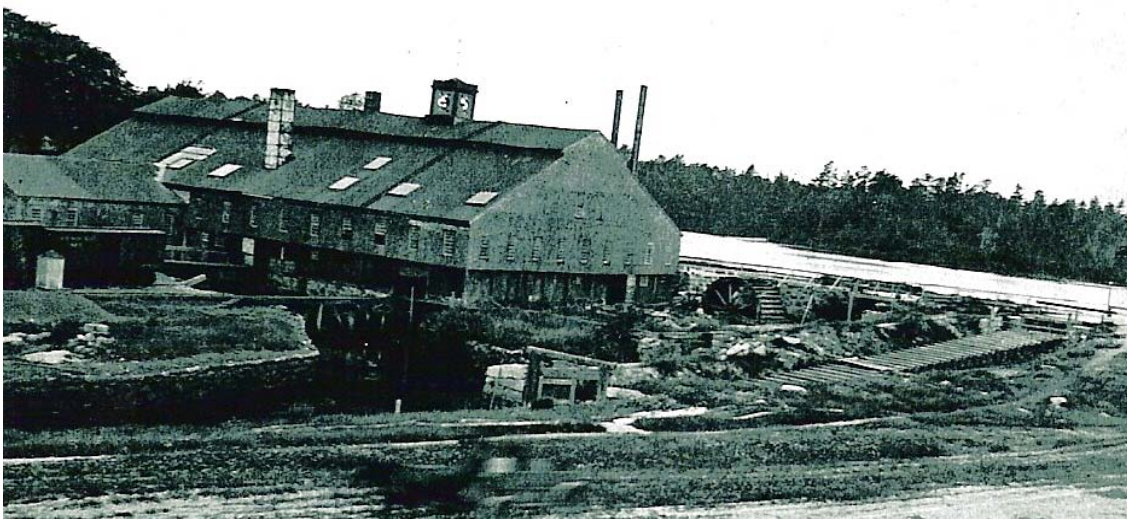
Source: Wareham Free Library Photo Archive, gift of Donna Barr Truran

Freight House (nail storehouse) on the right, Wankinco River and fishway in the center, Tremont Nail Company at Parker Mills, looking south, c 1895

At the end of the 1890s, the first Sanborn Company fire insurance map of the Tremont Nail Company/Parker Mills site is available, and it reveals a ground plan similar to what is found at the site today. One noteworthy addition to the site was steam power, signified by the two black rectangles on the plan. (Appendix 1.)



Source: Sanborn Fire Insurance Map, Wareham, June 1896
Ground pan of Tremont Nail Company at Parker Mills, flanking Elm St., 1896



Source: Wareham Free Library Photo Archive, gift of Donna Barr Truran
Tremont Nail Company at Parker Mills, looking northeast; pipe chimneys at the location of the steam engines, c 1895

While Tremont Nail Co. adapted to the shift from iron to steel cut nails, it struggled to compete with wire nails and the great increase in the supply of nails, which led to a sharp decline in the wholesale price. In the 1890s, wire nails gained ground rapidly: by 1892, wire nail production overtook cut nail production. Then in 1893, another great economic depression began, which sank all business; the prices for nails, already well off from their old highs, fell more. Despite the depression, the wire nail mills churned out ever larger quantities of nails, while cut nail output continued to fall. Wire nails manufacturers formed a cartel in 1895 to try to reduce output, to prop up prices. And the association held together briefly, which may account for a rise in cut nail production in 1897. But in 1900, wire nail production was 7.2 million kegs, compared with 1.6 million kegs of cut nails, and cut nail production continued its downward trend.⁶⁵

In 1915, Horace Tobey was still serving as TNC's president; the company's vice president was George U. Crocker, and William A. Leonard was treasurer, manager and purchasing agent. The superintendent was Forrest A. Larchar. At this point, only fifteen cut nail makers remained in business in the U.S. and Canada; Tremont Nail was the only company in New England.⁶⁶



Source: Susan Pizzolato and Lynda Ames Byrne, *Wareham (Images of America)* (2002)

Parker Mills plant, date unknown (after electricity was brought to the site)

Tremont Nail Co. at Parker Mills in the Twentieth Century

In 1927, James S. Kenyon, Sr. purchased Tremont Nail Company. It passed to his son, James S. Kenyon, Jr. and remained in the Kenyon family until 1989. The works in West Wareham closed, presumably at the end of the 1920s. Without the West Wareham works to supply nail plate, TNC brought in steel plate by railroad and truck. Pickling was introduced at this time to clean and treat the plate before it went into the nail machines. The principal changes to the site during these six decades were an extension on the east side of the main factory, and construction of the small freight building, restroom building, and steel building.

In addition, a number of structures were demolished, i.e., several outbuildings near the office building, a small shed west of the machine shop, and part of the pickling building/shearing shed. (Appendix 1.) The structures at West Wareham were leveled.

In the losing battle with wire nails, the company's advertising focused on the superiority of cut nails, especially for certain applications, like hammering into masonry. Cut nails had greater holding power, TNCo advertising proclaimed. Specialties included hardened open-hearth steel cut floor and finishing nails.

The factory continued to operate, but must have looked more like a museum than a modern factory, despite the company's efforts to find market niches in which their products could compete. The huge plant was heated by pot-bellied stoves and warmth from the heating furnaces. Open shafts, wheels, and belts whirled above and beside the machines. The old machines labored on, kept in repair by employees who made replacement parts.



Source: Historic American Engineering Record, Library of Congress

Nail cutting machines, still in use in the Tremont Nail Co. factory, 1987

In 1971, following the enactment of the Occupational Safety and Health Act, the Secretary of Labor established a special agency, the Occupational Safety and Health Administration (OSHA), to administer the Act. Kenyon worried that it would be too costly and difficult to meet the requirements of the Act in his 125-year-old factory and therefore sought a variance from the Act. In 1975 an office of the National Park Service urged the Massachusetts Historical Commission to nominate the Tremont Nail Factory Historic

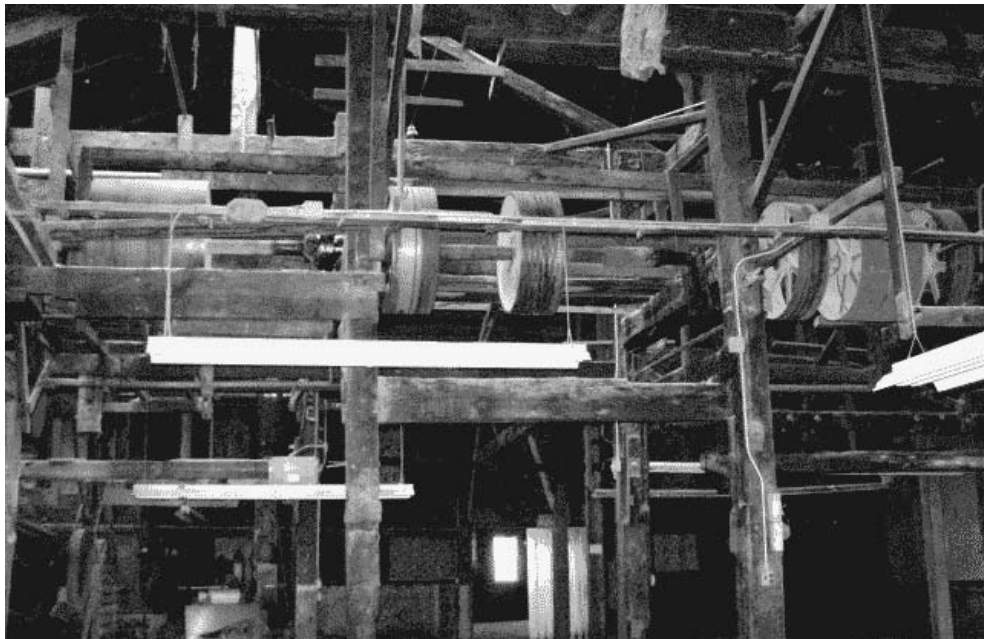
District to the National Register of Historic Places. There seems to have been a notion that if listed, the factory could be exempted from OSHA requirements. It was listed in 1976.

In 1989, the Kenyons sold the company to W. H. Maze Co., an Illinois-based nail-making firm. The Town of Wareham acquired the 7.16 acre historic property in 2004 and leased it to Maze Co., which continued to make nails there, but in the steel shed. The old factory was vacated. Then in 2005, Maze sold the business to Acorn Manufacturing Co. of Mansfield, Mass., which moved operations to Mansfield the following year.⁶⁷ Acorn continues to produce Tremont Nail brand cut nails, made by eight former Tremont Nail employees. Tremont Nail Co.'s former factory in Wareham is presently (2008) unused.

Part 4. Historical Significance of the Site

The three structures on the former Tremont Nail Co. site that date from the founding of Parker Mills – the factory and its west and south ells, waterside freight house, and office buildings – are the principal historic structures. (The pickling building is also a nineteenth century building, its date of construction is uncertain.)

The three main buildings are of great significance, as representatives of the time when nail making was town's principal manufacturing industry. The footprint of the historic factory has changed little. The roof and interior have been modified over time; on the roof, openings have been made and closed as chimneys were added and removed, and the structure of the interior has been altered to accommodate changing arrangements of the machinery. Nevertheless, the shafts and wheels in the ceiling, which attached to belts that drove the individual machines, remain in the main room of the factory, as do heating furnaces. These are treasures of industrial archeology. Other significant survivals are the blacksmith shop in the west ell, and machine shop and grindstone area in the south ell.



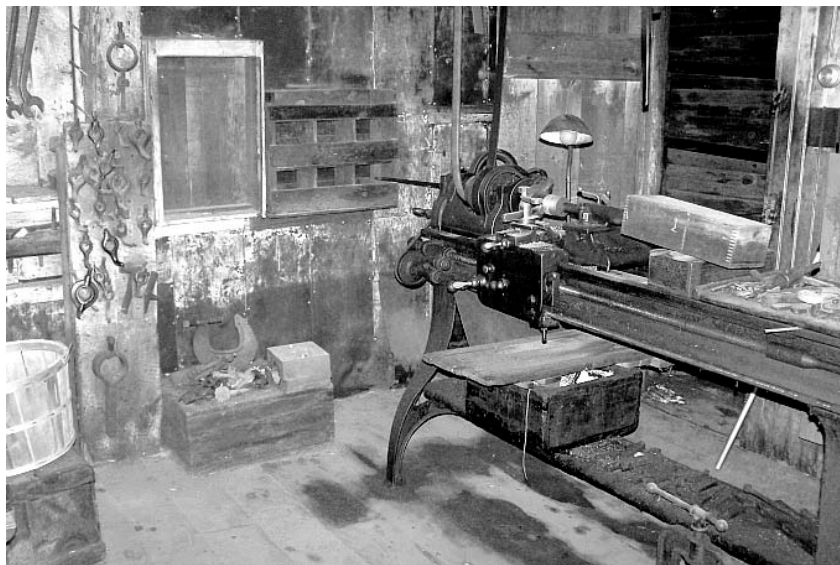
Shafts and wheels for driving individual machines, Tremont Nail Co.



Heating furnaces in factory building, Tremont Nail Co.



Blacksmith shop, west ell of the factory building, Tremont Nail Co.



Machine shop in the south ell of the factory building, Tremont Nail Co.



Grindstone stands in south ell of factory building, Tremont Nail Co.

The factory has the traditional form of a nineteenth-century ironworks: a vast roof, with a clerestory along the ridge, resting on walls. The fire risk to such a building, containing furnaces and other sources of ignition, is great and many of these works burned down. That TNC's building survived for about 160 years is remarkable. The office building and freight house are highly significant, too, as part of the plant of the nineteenth-century ironworks. The office building is apparently a purpose-built structure; the iron bar in the second floor, presumably intended to suspend the floor in order to create a more open first floor (without posts and walls), or perhaps because of anticipated heavy loads on the second floor, is not something one would find in a dwelling. The water-orientation and doors of the freight house mark it as an old building designed to receive freight brought by water. It represents an era when water transport was vital for bulky goods like the iron and coal used at Parker Mills, and why Wareham, with its water access and water power, attracted this industry.



Birdhouses on the southwest corner of the factory building, Tremont Nail Co.

TNCo was important to Wareham in other ways. The principals and families of the iron firms helped develop the town's economy generally – bringing in railroads, serving as officers with local banks, housing hundreds of residents in company tenements and serving them in company stores – and contributed to the town's welfare, e.g., by building the town's library. It is fitting that this building be retained as a memorial to their work and contributions, so future generations can better understand this phase in the town's history.

Endnotes

¹ The site is referred to in this report as the Elm Street site, Wareham Centre site, Centre Nail Factory, or Tremont Nail Company (TNCo) site. Elm Street was named Sandusky Road in the nineteenth century, but I will call the street by its current name.

² John P. Bigelow, *Statistical Tables ... Branches of Industry in Massachusetts for the Year Ending April 1, 1837* (Boston, 1838), 157-58. The surveys were conducted by town assessors for the Secretary of the Commonwealth.

³ John Hayward, *A Gazetteer of Massachusetts* (Boston: John Hayward, 1846), 293.

⁴ Noble Warren Everett, "History of Wareham," in Duane Hamilton Hurd, *History of Plymouth County, Massachusetts: With Biographical Sketches Part 1* (Philadelphia: J. W. Lewis & Co., 1884), 212. Everett's "History," found on pages 191-232 in Hurd's book, is a very valuable chronicle of the iron business and is referenced hereafter as Everett's "History of Wareham."

⁵ N. W. Everett, "History of Wareham," 215.

⁶ For example, "In 1814 the British frigate 'Nimrod' came up the bay, set fire to wharves and vessels, and sent a cannon ball into Parker Mills iron works." (*A Handbook of New England* [Boston: Porter E. Sargent, 1917], 584.) Other, less anachronistic, accounts are more in agreement with William Bliss, who wrote in *Colonial Times on Buzzard's Bay* that the Nimrod anchored near Bird Island and sent small boats up to Wareham; the crews came into the town, set fire to a few vessels and the cotton mill, and left. ([Boston: Houghton, Mifflin, and Co., 1888], 159-60.) Mary Leonard wrote in *Mattapoisett and Old Rochester Massachusetts*, "The Nimrod came as far as Charles's Neck, and sent some barges to Wareham, whose crews burned a few houses in that village, causing great excitement" ([New York: Grafton Press, 1907], 151)

⁷ Thomas Weston, *History of the Town of Middleboro Massachusetts* (Boston: Houghton, Mifflin and Co, 1906), 416-17; D. Hamilton Hurd, *History of Plymouth County part 2*, 1035.

⁸ Maureen Phillips, "Mechanic Geniuses and Duckies Redux: Nail Makers and Their Machines" *APT Bulletin* 27 (1996): 47-56.

⁹ Chapter 28, 1827, *Private and Special Statutes of the Commonwealth of Massachusetts, from May 1822 to March 1830* vol. 6 (Boston, 1837), 593-94.

¹⁰ Octavius Pickering, *Reports or Cases Argued and Determined in the Supreme Judicial Court of Massachusetts* vol. 15 (Boston: Little, Brown and Co., 1866), 412, 414.

¹¹ N. W. Everett, "History of Wareham," 195.

¹² N. W. Everett, "History of Wareham," 212; Amos Loveday, Jr., *The Rise and Decline of the American Cut Nail Industry* (Westport, CT: Greenwood Press, 1983), 26.

¹³ *Private and Special Statutes of the Commonwealth of Massachusetts, from May 1822 to March 1830* vol. 6 (Boston, 1837), 593-94; N. W. Everett, "History of Wareham," 212-13; Thomas Weston, *History of the Town of Middleboro Massachusetts*, 417-18. Records of Pratt's businesses in Pennsylvania are at Hagley Museum & Library. According to Hagley's guide to the "Jared Pratt & Son, Records, 1837-1859," in 1836, Jared Pratt purchased Fairview Rolling Mill on the banks of the Susquehanna River just north of Harrisburg. When Jared's son Christopher joined him, the firm became J. Pratt & Son. The Pratts sold their mills in 1859 and Jared moved to No. Middleboro, Mass. (Economic History in the Philadelphia Region, Hagley Museum & Library, <http://www.librarycompany.org/Economics/PEAESguide/hagley.htm>, accessed December 9, 2008.) The Pratts owned other mills including, according to the Historical Society of East Pennsboro, the Harrisburg Nail Works, from 1842 [1844*] to 1859. The Harrisburg Nail Works, located along the Conodoguinet Creek in West Fairview, was in production from 1830 to the late 1890's. Tremont Nail Company gave the Historical Society a working nail machine, similar to those used in the West Fairview mill. The Historical Society hopes to feature it in a nail-making exhibit. (Historical Society of East Pennsboro, Pennsylvania <http://www.ephistory.org/nailworksmuseum.htm>, accessed December 9, 2008.) (*Gerald G. Eggert,

Harrisburg Industrializes: The Coming of Factories to an American Community [Penn State Press, 1993], 57-58.)

¹⁴ N. W. Everett, "History of Wareham," 213.

¹⁵ N. W. Everett, "History of Wareham," 213; Daniel Ricketson, *New Bedford Past and Present* (Boston: Houghton, Mifflin and Co., 1903), 154; D. Hamilton Hurd, *History of Bristol County, Massachusetts* (Philadelphia: J. W. Lewis & Co., 1883), 127-28. In this history, Hurd wrote that Parker was president and owner of "the Lionet Iron Mills at Wareham" (p. 128), but he meant "Tionet."

¹⁶ Octavius Pickering, *Reports or Cases Argued and Determined in the Supreme Judicial Court of Massachusetts*, 414.

¹⁷ N. W. Everett, "History of Wareham," 213.

¹⁸ Chapter 15, 1845, *Acts and Resolves passed by the General Court of Massachusetts, in the years 1843, 1844, 1845* (Boston, 1845).

¹⁹ Journal, Parker Mills, March 8, 1845-Sept. 20, 1851 (A-1), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School.

²⁰ John Stetson Barry, *A Genealogical and Biographical Sketch of the Name and Family of Stetson* (Boston, 1847), 107. The author dedicated his book to Nahum.

²¹ D. Hamilton Hurd, *History of Plymouth County, Massachusetts...* Part 2 (Philadelphia: J. W. Lewis & Co, 1884), 820-21; Orra Stone, *History of Massachusetts Industry* vol. 2 (Boston: The S. J. Clarke Publishing Co., 1930), 1190-92. Date of Stetson's work at the Weymouth Iron Co. plant, John Stetson Barry *A Genealogical and Biographical Sketch of the Name and Family of Stetson*, 107; but J. Peter Lesley gives the date of this plant as 1836 (*The Iron Manufacturer's Guide to the Furnaces, Forges and Rolling Mills of the United States* [NY: John Wiley, 1859], 220). Jacob Perkins, of Lazell, Perkins & Co., is not the same Jacob Perkins who invented the nail machine.

²² J. Peter Lesley gives the date 1843 for the works (*The Iron Manufacturer's Guide to the Furnaces, Forges and Rolling Mills of the United States*, 221). John Stetson Barry gives the date March 1846 (*A Genealogical and Biographical Sketch of the Name and Family of Stetson*, 107).

²³ Bills, 1846 (case 1); Balance Sheet, 1847-1858, Parker Mills (CA-1), Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School.

²⁴ Journal, Parker Mills, March 8, 1845-Sept. 20, 1851 (A-1); Balance Sheet, Parker Mills, 1837-1858 (CA-2), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School.

²⁵ Journal, Parker Mills, March 8, 1845-Sept. 20, 1851 (A-1); Balance Sheet, Parker Mills, 1837-1858 (CA-2), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School.

²⁶ N. W. Everett, "History of Wareham," 213.

²⁷ Incoming Letters, 1848-49, Dec. 6, 1848 and Oct. 5, 1848 (case 2), Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School.

²⁸ Journal, Parker Mills, March 8, 1845-Sept. 20, 1851 (A-1); Bills from 1847 (case 1), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School; Francis G. Pratt, Jr., *The Pratt Family* (Boston, 1890). Isaac Pratt, Jr., became president of Parker Mills in the late 1870s.

²⁹ *Sixth Exhibition of the Massachusetts Charitable Mechanic Association* (1850), 40, 43.

³⁰ Bills, May 30, 1946 (case 1), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School; Massachusetts, vol. 60, p. 50, R. G. Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School.

³¹ Payroll, Parker Mills, 1873-1888 (DC-6), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School; N. W. Everett, "History of Wareham," 213.

³² J. Peter Lesley, *The Iron Manufacturer's Guide to the Furnaces, Forges and Rolling Mills of the United States*, 221-22.

³³ Massachusetts, vol. 60, p. 50 and p. 86, R. G. Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School.

³⁴ Payroll, Parker Mills, 1873-1888 (DC-6), Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School; *A Review of the Commercial, Financial and Mining Interests of the State of California ... for the Year 1876* (San Francisco, 1877): 42. Wiley's *American Iron Trade Manual* (1874) listed Parker Mills as having "800 hands." This figure is incorrect. (Thomas Dunlap, ed., *Wiley's American Iron Trade Manual* [NY: John Wiley & Son, 1874], 135.) (See Appendix 5.)

³⁵ Insurance policies (case 2), Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School.

³⁶ American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 6th ed. (Philadelphia, 1882), 88.

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- ³⁷ James M. Swank, *History of the Manufacture of Iron in All Ages: And Particularly in the United States from Colonial Time to 1891* 2nd ed. (Philadelphia: American Iron and Steel Association, 1892), 451.
- ³⁸ Massachusetts, vol. 60, p. 86, R. G. Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School. N. W. Everett gives the date as 1881 ("History of Wareham," 213).
- ³⁹ "Why Wages Are Reduced," *New York Times* (Nov. 18, 1884): 1; "An Iron Company in Trouble," *New York Times* (July 22, 1886): 1.
- ⁴⁰ American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 9th ed. (Philadelphia, 1888), 162.
- ⁴¹ Deed, Bridgewater Iron Co. to Tremont Nail Co., April 5, 1887.
- ⁴² Two early ironworks associated with Nahum Stetson – Bridgewater Iron, Weymouth Iron – and later ones, Tremont Iron Company and Parker Mills, shared a number of features: all were multi-site plants and made nails in addition to other products. Whether the venerable Bridgewater Iron Co., or Weymouth Iron, or perhaps an iron company outside of Stetson's sphere, served as a model for the Wareham-based ironworks, or whether the pattern these plants took reflected some natural logic, is unknown.
- ⁴³ *Phymouth County Directory and Historical Register* (Middleboro, Mass.: Stillman B. Pratt & Co, 1867), 114.
- ⁴⁴ Bryant v. Russell, in Octavius Pickering, *Reports of Cases Argued ... in the Supreme Judicial Court of Massachusetts* (Boston: Little, Brown & Co., 1864), 508-547.
- ⁴⁵ N. W. Everett, "History of Wareham," 213.
- ⁴⁶ Chapter 88, 1845, *Acts and Resolves Passed by the Legislature of Massachusetts in the Year 1843, 1844, 1845* (Boston, 1845).
- ⁴⁷ N. W. Everett, "History of Wareham," 213; Charles F. Adams, Jr., "The Canal and Railroad Enterprise of Boston," in Justin Winsor, ed., *The Memorial History of Boston* vol. 4, part 2 (Boston: James R. Osgood & Co., 1881), 140.
- ⁴⁸ Invoices, folder 1845-1848 (case 3), Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School.
- ⁴⁹ James M. Swank, *History of the Manufacture of Iron in All Ages* 2nd ed., 434-35.
- ⁵⁰ J. Peter Lesley, *The Iron Manufacturer's Guide*, 221; N. W. Everett, "History of Wareham," 213; Massachusetts, vol. 59, p. 10, R.G. Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School. Members of the Nye family operated Tihonet works before Parker Mills took it over.
- ⁵¹ Massachusetts, vol. 59, p. 10, Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School; N. W. Everett, "History of Wareham," 213. Tremont Iron Company finally dissolved as a corporation in 1873. (Chapter 327, 1873, *Acts and Resolves Passed by the General Court of Massachusetts in the Year 1872, '73* [Boston, 1873], 850.) (Appendix 5.)
- ⁵² Massachusetts, vol. 60, p. 76, Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School.
- ⁵³ D. Hamilton Hurd, *History of Plymouth County, Massachusetts...*, 226-27, and part 2, p. 1035; *Plymouth County Directory and Historical Register*, 117; *American Biography* vol. 5 (NY: American Historical Society, 1919), 107.
- ⁵⁴ "Cape Cod Branch Rail Road," *Merchants' Magazine and Commercial Review* vol. 19 (July – December 1848): 116. Coggeshall was no longer a director by 1848.
- ⁵⁵ N. W. Everett, "History of Wareham," 213-14; *Plymouth County Directory and Historical Register*, 142. Lewis Kinney was an important manufacturer of barrel staves and nail kegs. (*Plymouth County Directory and Historical Register*, 117.)
- ⁵⁶ N. W. Everett, "History of Wareham," 214. *Plymouth County Directory and Historical Register* says it was operated by Robinson Iron Co. (c 1866), p. 116. This site was abandoned by 1894. (American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 12th edition (Philadelphia, 1894), 181.)
- ⁵⁷ *American Biography* vol. 5 (NY: American Historical Society, 1919), 107-108; Report of the Class of 1858 of Harvard College (Boston, 1898), 93-95. Mrs. George O. (Blanche) Tobey and her daughter Alice (Mrs. John Jones) donated the land and building for Wareham's public library, which opened in 1918.
- ⁵⁸ Massachusetts, vol. 60, p. 92, Dun & Co. Collection, Baker Library Historical Collections, Harvard Business School.
- ⁵⁹ "Making Steel Nails," *Boston Daily Globe* (Nov. 21, 1887): 3; American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 8th edition (Philadelphia, 1886), 77, and American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 10th ed. (Philadelphia, 1890), 85.
- ⁶⁰ American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 12th ed. (Philadelphia, 1894), 84.

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- ⁶¹ Journal, Parker Mills, Feb. 28, 1878 – Oct. 30, 1886 (A-4), Records of Parker Mills and Tremont Nail Company, 1845-1918, Historical Collections, Baker Library, Harvard Business School.
- ⁶² Reports of Committees of the Senate of the U.S. for the First Session of the 51st Congress, 1889-90., U.S. Serial Set (Washington: GPO, 1890), 611-12.
- ⁶³ American Iron and Steel Association, *Directory to the Iron and Steel Works of the United States* 14th ed. (Philadelphia, 1898), 75.
- ⁶⁴ *Public Documents of Massachusetts: Being the Annual Reports of Various Public Officers and Institutions for the Year 1894* vol. 12 (Boston, 1895), 61.
- ⁶⁵ Naomi R. Lamoreaux, *The Great Merger Movement in American Business, 1895-1904* (NY: Cambridge University Press, 1988), 69-70; American Iron and Steel Institute, *Annual Statistical Report of the American Iron and Steel Institute, 1918* (NY, 1919), 56.
- ⁶⁶ Adolphus Backert, ed., *The ABC of Iron and Steel: With a Directory of the Iron and Steel Works and Their Products of the United States and Canada* (Cleveland: Penton Publishing Co., 1915), 299, 319.
- ⁶⁷ Tremont Nail, Frequently Asked Questions, <http://www.tremontnail.com/faqs.htm> (accessed Dec. 4, 2008).

B. BUILDING CHRONOLOGIES

Dates and Uses of Tremont Nail Company/Wareham Center Buildings

The main sources for dates of buildings were Sanborn maps, from 1896 (the earliest I could find) through 1901, 1906, 1912, 1924, 1924-45; Noble Warren Everett, "History of Wareham;" in Duane Hamilton Hurd, *History of Plymouth County, Massachusetts: With Biographical Sketches* (Philadelphia: J. W. Lewis & Co., 1884); Assessor's Dept. records; Gary Franklin, TNC Co employee, interview on Dec. 5, 2008; and Records of Parker Mills and Tremont Nail Company, 1845-1918, Baker Library Historical Collections, Harvard Business School.

1. Steel building
2. Factory building
3. Office building (white clapboard)
4. Restroom building
5. Pickling building
6. Packaging building
7. Freight building
8. Freight shed

1. Steel Building, c 1976-77.

1-story steel-sided building, constructed as a warehouse. Some production moved there (i.e., cleaning the steel, using the wheelabrator machine), perhaps as early as 1977. Then in 2001 all production operations moved to this building, mainly because of the high cost of operating the old factory.

Sources: Walter E. Rowley & Assoc., Inc., West Wareham & Falmouth, Mass., Tremont Nail Co., Perimeter Plan, Sheet 1, Nov. 12, 1975; Town of Wareham, Assessor's Dept. card, Tremont Nail Co. 1976; Gary Franklin, Tremont Nail Co. employee, interview on Dec. 5, 2008; National Register Nomination Form, June 1978, 7-3. Shown as proposed on November 1975 plan; appears on Assessor's Dept. records as "New Plant" in 1977.

2. Factory Building, c 1848 and later

1-2 ½ story large wood-frame factory covered with wood shingles, with ells on its west, south, and east sides. The main body of the factory is a rectangle with a double roof (the band between the two roofs contained windows originally, but now this is shingled over). After 1880, but before 1896, a steam engine was installed in the northeast corner of the main building and two tall chimneys, now gone, rose through the roof at this point. The locations of chimneys and skylights in the roof have changed over time, as has the interior framing (altered to accommodate different arrangements of machinery).

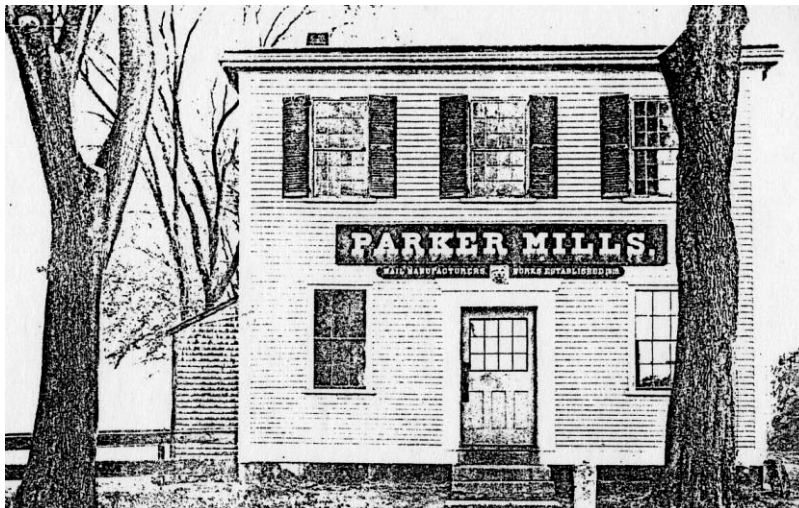
The west ell probably dates from 1848; it served as a blacksmith shop in 1896 and remained so into the 20th century. The western end of the ell has changed over time. Old photographs show a small, louvered structure on the roof at the west end, which no longer exists. Now, there is a brick chimney on the north side.

The main part of the south ell, 1 ½ stories with a pitched roof, existed in 1896 and also probably dates from the original construction of the building. This section had been a storehouse. A one-story extension on the east side, with a shed roof, was added after about 1895, before c 1910. By 1896, this building was a blueing and machine shop; the blueing left and it became a machine shop in 1924. The eastern extension was last used for the grindstones.

The main recent addition to the factory was an ell built on the east side. It went up after 1924, but does not appear on some later plans. A 1987 photo shows this addition; however, there are windows on the south side that do not exist today. The current extension, with a shed roof, may have been built or modified after 1999.

Sources: Noble Warren Everett, "History of Wareham," in D. Hamilton Hurd, *History of Plymouth County*, 213; Walter E. Rowley & Assoc., Inc., West Wareham & Falmouth, Mass., Tremont Nail Co., Perimeter Plan, Sheet 1, Nov. 12, 1975; fire insurance policies 1864 and 1880-81 (case 2), Records of Parker Mills and Tremont Nail Company, Baker Library Historical Collections, Harvard Business School; Sanborn maps.

3. Office Building, c 1848 and later



Office building, Parker Mills, later Tremont Nail Company, Wareham Centre, c 1919

2-story with a basement, shallow-pitch roof; relatively recent (c 1979-80) one-story addition on the rear; wood frame covered with clapboards.

There is no source for the date of this building. Nevertheless, because an 1836 fire reportedly destroyed everything on the site except for a small building containing nail machines, and the amount of building Parker Mills undertook in the 1846-48 period, it seems reasonable that it was erected at this time. Presumably it was purpose-built as an office building (a counting house).

The footprint of the original office building has not changed since 1896, except that an addition on the east side (visible in the old photo, above) has been demolished. The 9x9 windows on the second story and 6x6 first story windows, on the Elm Street façade, existed since the beginning of the twentieth century, at least.

A few outbuildings near the office building have been lost. A nineteenth-century building that had been behind the office building, and extended west past the rear of the neighboring tenement house, was demolished before 1924, and another little building in the rear of the office was demolished by 1975.

Sources: Noble Warren Everett, "History of Wareham," in D. Hamilton Hurd, *History of Plymouth County*, 213; Records of Parker Mills and Tremont Nail Company, Baker Library Historical Collections, Harvard Business School; Sanborn maps.

4. Restroom Building, c 1953

1 ½ stories with a pitched roof, wood building

Sources: Sanborn maps – 1924, 1924-45, 1963; Town of Wareham Assessor's Dept. After 1930s, before 1963; the Assessor's records indicate a "new building" on the site in 1953, which I assume is this building

5. Pickling Building (Shearing Shed), pre-1896

1½ stories with a pitched roof, wood frame.

This is what remains of a building, the former south half of which was marked "store house" on Sanborn maps. That part disappeared by 1912, at which point the remaining section became a store house. (Thus, its south wall is newer than the rest of the building.) In the 1930s or '40s it became the pickling room, where steel was cleaned (dipped in sulphuric acid to remove scale), rinsed, put in a lime solution, and cut (sheared) to the required size. When a new method of cleaning was adopted and set up in the steel building, this building became the shearing shed.

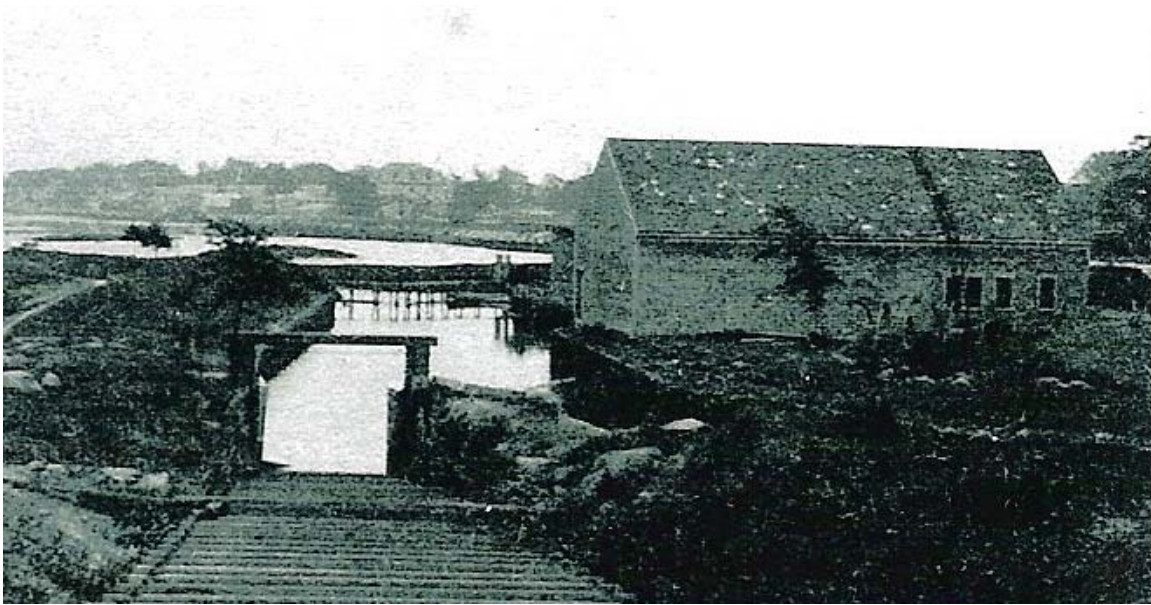
Sources: Sanborn maps; Gary Franklin, Tremont Nail Co. employee, interview on Dec. 5, 2008.

6. Packaging Building, c 1957

This one-story building was built on the site of the storehouse formerly connected to the south end of the Pickling Building. Railroad tracks ran on the east side of the Pickling Building; the wider Packaging Building straddled these tracks, so steel could be unloaded under cover. It served as a storehouse.

Sources: Sanborn maps, Gary Franklin, Tremont Nail Co. employee, interview on Dec. 5, 2008; Town of Wareham Assessor's Dept. Assessor's records indicate a "new storage shed" on the site in 1957, which I assume is this building.

7. Freight Building, c 1848 and later



Freight building, c 1895, north end, Wankinco River in the center

This 1½ story building, which served as a nail storehouse, was erected in two phases, but both parts date from before 1896. The older part is the southern section, parallel with the Wankinco River. The framing in this building is curious, with mortise holes in the timbers suggesting they had been used for a different purpose. Nevertheless, this part of the building may date from the time Parker Mills was established. A rectangular addition attached to its north end creates an L-shaped footprint. When this section was added is uncertain.

Sources: before 1896 (Sanborn map); Tremont Nail Co. Records, Historical Collections, Baker Library, Harvard Business School; Noble Warren Everett, “History of Wareham.”

8. Freight Shed, c 1900?

The first time this building appears on a Sanborn map is 1912; however, it may have existed before this, as the earlier Sanborn map did not cover the land where it stood.

Source: Sanborn maps.

Missing buildings

The only other missing buildings, apart from the buildings that stood in the northwest corner of the site, the store house, and east wing (all described above) are a 1½ story shed, that stood west of the south ell/machine shop wing of the main factory and the privy (recently demolished by vandals).

A. SITE ASSESSMENT



The Site

The site now associated with the remaining eight buildings of the Tremont Nail Factory consists of approximately seven acres. In its earlier incarnation, the property included the “company store” (formerly the cooper’s shop) located across the street adjacent to the Parker Mills Pond and a group of worker houses located across the Wankinco River. These are now privately owned.

The present site is a picturesque remnant of a once thriving industrial site. A number of regulatory guidelines now dictate how the site can be used and redeveloped. Almost six of the seven acres are located in a FEMA mapped, 100 year flood zone. The Office building is the only structure located above the 100-year stillwater flood elevation. The Massachusetts Wetland Protection Act and Rivers Protection Act both serve to protect the ecosystem related to the Wankinco River. All buildings except the Office Building and Steel Building, along with a substantial amount of impervious paving, are within the 100’ wetland buffer zone and 200’ riverfront area; because of their status as pre-existing conditions, these improvements afford opportunities for redevelopment that might not otherwise exist.



One of the key determinants of site use is the treatment of storm water which addresses water quality (pollutants) and water quantity (flooding, low base flow and recharge) according to Massachusetts Stormwater Management Standards. If there is an increase in impervious area associated with new site development, it is likely that the project would be viewed as a combination of redevelopment and new development. A redevelopment/new development undertaking would consider a variety of strategies to minimize impervious surface and land disturbance; it would also address source control and pollution prevention, structural BMPs (best management practices), construction period erosion and sedimentation control, and long-term operation and maintenance of storm water management systems. The site design should include Low Impact Development measures such as reducing impervious areas, Bio-Retention, and vegetated filter strips to remove pollutants from the stormwater prior to recharge.

Water management at the Tremont Nail site has been handled historically in various ways, as evidenced by the open channels in the Office Building cellar and at the Nail Factory. Seepage from the dam that separates the site from Parker Mills Pond is seen at the factory building along most of the wall bordering Elm Street. The open channel in the Office Building should be replaced with an enclosed box culvert or ideally, diverted around the building.

On the plus side, the site is served by municipal water and sewer service including an existing sewage lift station connected to the municipal sewer line with a force main. As-built drawings for the pump station and installation are not available. It is likely that ‘upsizing’ of the pump station and force main would be required to accommodate any substantial increase in sewer flow from the site.

Character-Defining Features & Significance

The historical site treatment of roadways and freight vehicle parking would have been packed earth and gravel. Water run-off would provide simple control for erosion purposes, but not necessarily for pollutants. Open channels and collected seepage in cellars were facts of life and broadly tolerated. Indeed, there appears to have been a deliberate channel through the Nail Factory as an early use of motive power. While interesting to document and interpret, these are not features that should be preserved as they adversely impact building preservation.

The large section of natural landscape which comprises about half of the site (approximately three acres) is protected by the Wetland Protection and River Protection acts and is thus preserved for its ecological and wildlife value.



It is the presence of the Wankinco River and the Parker Mills Pond that both inspired the industrial development of this site in the early nineteenth century and gives it distinct character today. These offer historical, scenic and recreational value.

Site: Character Defining Features

- Spatial relationships between the buildings and the Wankinco River
- Natural landscape
- Parker Mills dam
- Fish ladder
- Building arrangement and density

Recommended Action

Step 1

- Continue the current lease of the Steel Building.
- Hold off on any further leasing pending further study of the economics of redevelopment.
- Create informational sign communicating the site name, ownership, building status (e.g. study, building stabilization, etc.)
- Maintain public access to the kayak launching site with stipulated parking per the DCR agreement.
- Maintain wetlands and river protection buffers. Investigate natural management program which may include removal of the invasive species.
- Begin investigation of water management of dam and spillway with Makepeace.
- Keep site clear of unauthorized parking and use.
- Maintain security lighting.

Step 2

- Create interpretive signage program so that pedestrians develop an understanding of the history and use of the property over time. These could be wayside-type markers.

Step 3: Implement Development Plan

- Implement development plan using the design guidelines developed in this study.
 - Site Rehabilitation: Although tied to the successful re-use of individual buildings on the site it is useful to understand the cost implication of reconstructing the parking and site circulation to properly control run-off, organize car parking in rational manner, provide site appropriate landscaping (including restoration of native species at perimeter of paved area, constructing vegetated retention basins, etc.), lighting and trenching for underground utilities to buildings. The site has about 75,500 square feet of paved area to be rehabilitated. At current costs, rehabilitating paved areas may be done for about \$20 per square foot, yielding about \$1,510,000 in total site rehabilitation costs. Although there are economic efficiencies to doing the entire site as one large project, it could be broken out into smaller projects – for example rehabilitating the paved area between the Freight Building and the Packaging Building where most of the sheet run-off from the hard surfaces accumulates in ponds.
 - Building Rehabilitation: Please see the individual building descriptions and the cost summary sheets.
 - New construction: The implementation plan describes scenarios where new office or residential space is constructed. As sketched, new construction would total about 20,000 square feet in three, two story buildings. Current costs per square foot for new construction of residential or office use is about \$200-\$300 per square foot for fully finished space. Taking the average yields a final build-out of about \$5,000,000. So the new construction will certainly need to be incentivized for potential developers so they might profit from the new construction allowing rehabilitation of other historic buildings.

B. ARCHITECTURAL ASSESSMENT BY BUILDING

Introduction

The eight buildings examined in this assessment represent the manufacturing and administrative facilities used by the Tremont Nail Factory at the time operations were moved to Mansfield, Massachusetts. This assessment will describe the architectural materials, form and physical condition of each building, beginning with the exterior and then moving to the interior. The conditions descriptions will include recommendations for repairs categorized as to urgency by the terms **poor**, **worn** and **fair**. Poor conditions should be addressed within one or two years, worn conditions should be resolved in five years, and elements in fair condition may be addressed after five years but before ten years have elapsed. A fourth category, **good** condition, applies to actively maintained elements where no work other than routine maintenance is required to retain the element.

The assessment considers building shapes, materials, craftsmanship, decorative details, interior spaces and features, and aspects of the site and environment – all elements that contribute to the unique character of the Tremont Nail Factory complex. Character-defining features are described for each building; these are distinguishing characteristics that should be retained to preserve the historic integrity of the building.

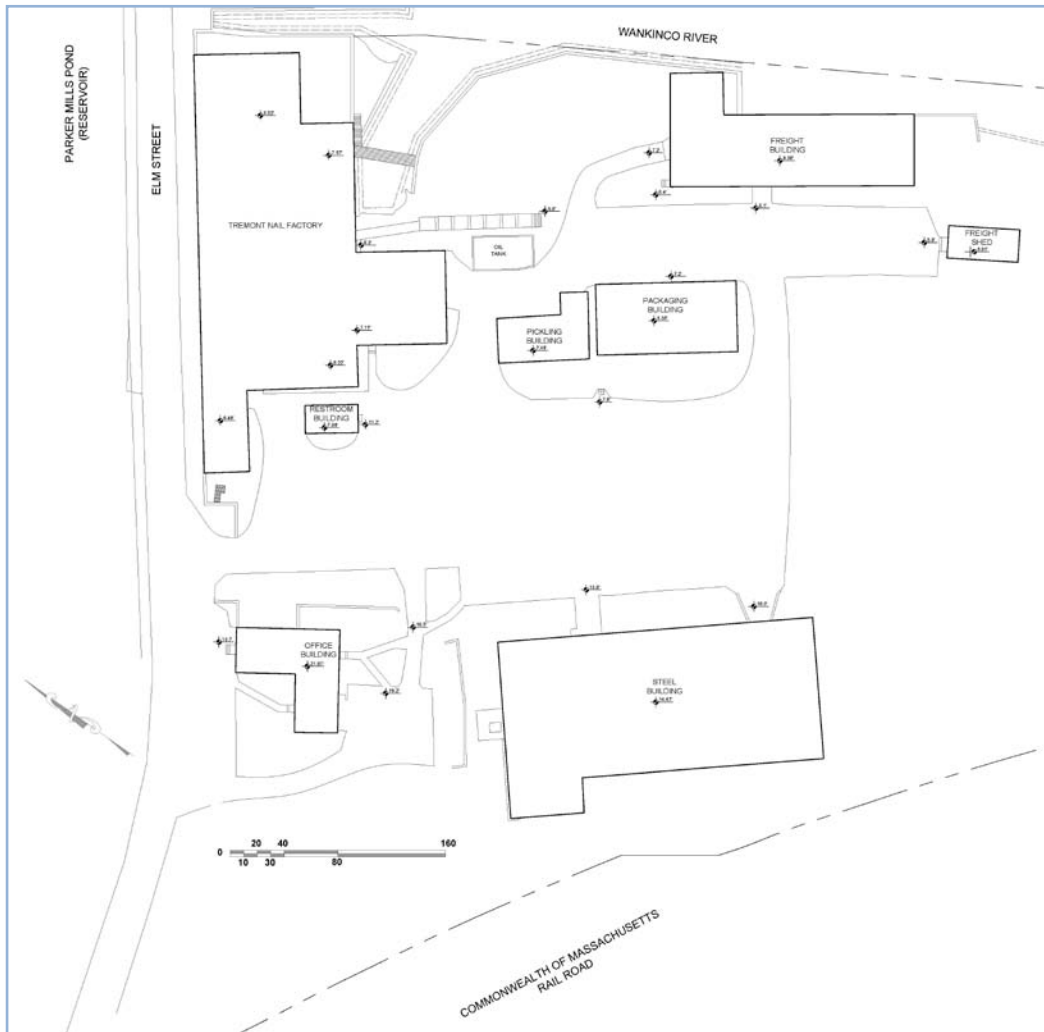
At the conclusion of each description of conditions is a comment on building significance. No period of significance is stated in the National Register Nomination, but a logical range of most significant dates spans ca. 1848 – ca.1927. This extends from the construction of the Tremont Nail Factory Building and Office Building through the construction of the Freight Shed and demolition of half the Pickling Building (ca. 1912) to the end of use of locally milled steel in 1927. This period saw the final evolution of the 19th century site where the original techniques and locally refined materials were exclusively used in the manufacture of iron products. After 1927 the nail company no longer refined its own steel, new buildings were erected, and on-site housing disappeared. Each building is viewed in the context of factory history and this period of significance.

The description of building significance is followed by treatment recommendations and associated cost estimates. The first step is almost always to stabilize and preserve the structure. The goal is to make the exterior envelope weather tight and renew finishes on the outside so that only routine maintenance is required to keep the buildings intact until further use is determined. Subsequent steps may include limited utilities upgrades or full rehabilitation.

Rehabilitation is broken further into three classes of rehabilitation fit-out cost: **low**, **medium** and **high**. Low cost rehabilitation envisions limited intervention into the existing building. Building use would be seasonal and facilities would be upgraded solely to meet minimum code requirements. Examples of **low** cost rehabilitation include open marketplaces, artist/craftsperson studios and galleries. **Medium** cost renovation sees greater intervention with subdivided spaces and multiple utility points and amenities; because of the degree of change, the medium cost approach is often least respectful of historic buildings because of the added partitions and spaces. Finally, **high** cost rehabilitation involves further modification or specialized construction and support services, such as for restaurant or retail use. A museum exhibiting the building would fall within this category. Fit-out costs are based on square footage and are roughly calculated as follows.

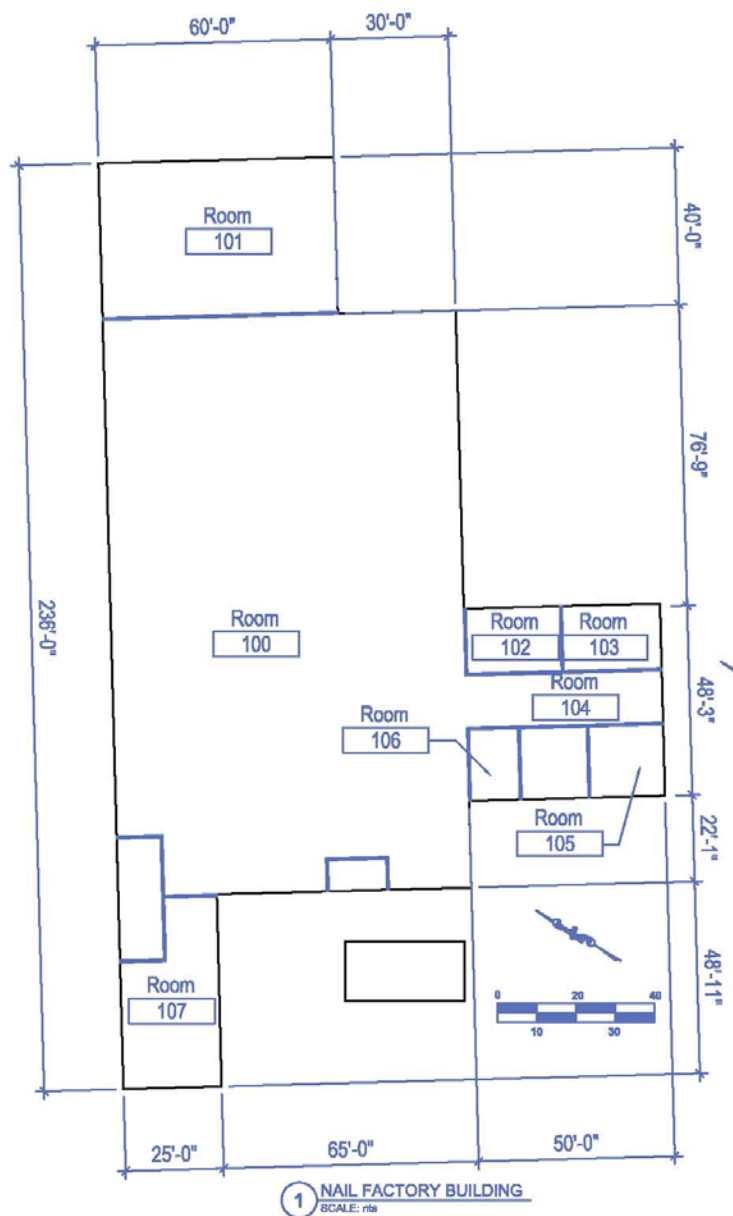
Low Cost Rehabilitation	\$150/sq. ft.
Medium Cost Rehabilitation	\$250/sq. ft.
High Cost Rehabilitation	\$300/sq. ft.

Within this section and throughout this report, the buildings are identified as shown on the plan below.



Descriptions begin with the Tremont Nail Factory Building and move clockwise around the site, concluding with the Restroom Building.

TREMONT NAIL FACTORY BUILDING (C. 1848 AND LATER)



The Nail Factory Building is a one-story building measuring roughly 19,225 square feet in area built circa 1848. Its form is a large rectangle approximately 40 feet in height joined by several smaller rectangles. The large rectangle has a gable roof, shallow gabled ridge monitor, and cupola; its north elevation is built into the bank of the Parker Mills Pond dam and is only ten feet from the busy roadway (Elm Street) crossing the dam. The shed-roofed ell at the east (Room 101) borders the mill chase connecting the pond with the Wankinco River. The narrow ell at the west (Room 107) has a gabled roof; the full height of its north wall is built into the bank. The south ell is cross gabled with a swayback roof extension at its east wall.



The building's foundation is not generally exposed. The building has a concrete slab floor on one level throughout. The interior is essentially an open, high center bay with unfinished walls and ceiling, flanked by smaller, more finished rooms.



Exterior

Roof

The gable roofs are covered in three-tab asphalt shingles in *poor* to *fair* condition. Roof sagging is seen on the north elevation of the main building, where the shingles are in *poor* condition with the exception of those in the repaired sections, which are in *fair* condition. The south elevation of the main building exhibits similar shingle conditions and an undulating profile. Shingles on the west ell are in *poor* condition; exposed flashing is seen in several locations. Shingle condition ranges from *poor* to *fair* on the south ell. The rubber roof on the east ell exhibits areas of repair and is in *good* condition.

The cupola on the ridge of the main building gable, which has rotated and leans to the right, appears to be in *fair* condition. There are two shed dormers on the south roof elevation. The roof signs and lettering ("T and N") on the west elevation are in *good* condition. The chimney on the west ell is in *poor* condition; it should be rebuilt and repointed at the top. The timber supporting the roof overhang at the doors facing Elm

Street is in *poor* condition and should be removed or replaced. The wavy roof line on the east side of the south ell suggests a framing inadequacy.



Flashing

Aluminum flashing on the building is in *poor* to *worn* condition.

Gutters and Downspouts

Gutters and downspouts on the north elevation of the main building have been replaced and are in *fair* condition; there is a sagging gutter joint at the roof cornice under the skylights. Gutters on the east ell are also sagging. There are no gutters or downspouts on the south elevation of the main building or the west ell.

Walls

Exterior walls of the building are cedar shingles left to weather. As would be expected, the lower courses are subject to maximum wear and tear and water infiltration and are generally in worse condition than the upper courses. On the north elevation of the main building, the shingles are in *good* condition at the top and *fair* condition nearer the bottom. Shingles on the south elevation of the main building are in generally *poor* condition, with advanced deterioration due to run-off at wall intersections with the south ell. The east and west elevations of the main building have shingles in *poor* to *fair* condition.

Shingles on the east ell are in *fair* to *good* condition, with the most damaged shingles near the damp northeast corner at the bank. Shingles on the west and south ells are in *poor* condition.



Openings

There are 90 windows in the Nail Factory Building, all wood with six-lite sash. Two windows in the west ell are boarded over. Windows on the main building are generally paired or triple hopper (single sash) on the lower level and double hung at the upper level and gables. Elsewhere, windows are generally single or paired double hung. Windows on the north and east elevations of the main building and the east ell have been replaced, some with low-cost units; those on the north elevation facing the roadway have been covered with wire mesh screens. Several replacement hoppers on the west elevation were installed upside-down. Overall, the wood windows are judged to be in *fair* condition. They require reglazing and painting. There are three skylights on the roof at the north elevation.

Most of the Nail Factory Building's 15 doors are of plank design with reproduction antique iron strap hinges and hardware. There are three large freight doors – a paneled overhead door in the south ell and two swinging doors in the south elevation of the main building. All are *worn* and require painting and repair, especially those on the west elevation of the main building that have been damaged by run-off containing iron sediment. The operation of all doors was not confirmed, but it is likely that they will require hardware adjustment to open and close smoothly.

Trim

The wood trim on the Nail Factory Building ranges from *poor* to *fair* condition, with the exception of spot trim repairs and the trim on the north elevation of the main building, which has been replaced and is in *good* condition. There is significant wood rot in many locations, particularly at sills. All the trim should be repaired, or replaced if necessary, and repainted.



Foundation

The building's foundation is not generally exposed on the building's exterior. An eight-foot rubble foundation rises from the runoff pool on the east side of the main building's south elevation. A cracked slab foundation is seen at the southwest intersection of the main building and south ell. The foundation visible from the exterior is in *fair* condition.



A trench for water diversion runs around the south and southwest sides of the building along the foundation wall. Two bridges – one concrete, the other wooden – cross water culverts to connect the factory building to the land surrounding the Pickling Building. Both bridges are in *poor* condition and should be removed.

Interior

The factory building, the heart of the former nail manufacturing operation, houses nail-making machinery and supplies, storage areas, a furnace, a blacksmith shop, a machine shop, and office spaces. The main factory room contains a collection of nail-making machinery, some installed at ceiling height and some mounted on the concrete slab floor. The main factory room and blacksmith area are very damp with scattered standing water throughout; water infiltration is through the banked foundation wall on the north side of the building and culverts underneath the building. A water trough runs along the north foundation wall directing seep water from the stone wall parallel to Elm Street in a channel along the base of the wall and eventually running out of the building along the west side and over to the Wankinco to drain.



Room 100

Framing

The main factory space is a large, high, open mass with heavy timber post and beam framing; all framing is exposed. Rows of timber columns line the room. Some trusses have been reinforced with steel beams; trusses on existing posts at the exterior wall are only partially bearing and should be replaced or reinforced. Wall sheathing is 1x plank, which is not individually adequate to provide lateral stability for conventional structures. The heavy timber and steel framing of the Nail Factory structure would need to be studied further to determine whether the plank sheathing should be augmented with plywood sheathing. Sheathing on the south wall is damp and shows mold. Roof sheathing is 1x plank in *poor* to *fair* condition; damaged portions should be replaced in kind so the historic appearance of sheathing is visible from inside and below.

Wooden catwalks and open tread stairs that provide access to nail-making equipment are in *poor* condition; the catwalks should be removed or reinforced and the access stairs removed. An open stairwell linked to the catwalks exits at the Elm Street roadway. The sill, with the exception of the portion over the culvert area on the south side, does not appear to have been properly attached to the foundation. In-fill walls and sills appear to be in *good* condition.

The floor in the northwest corner of the main room ramps up towards the shop office, which extends into the blacksmith shop ell (Room 107). It has board and batten exterior walls and 2" x 4" paneling on the interior.



Foundation

The banked granite rubble foundation on the building's high grade (north) side is in *fair* condition, showing mortar loss and seeping water. The concrete foundation on the low grade (south) side is in *fair* condition. Perimeter foundations should be waterproofed. A full analysis of the foundation should be performed to determine the need for reinforcement.

Insulation

There is no insulation.

Openings

See the exterior section for descriptions of the openings, which include 6/6 windows, 6-lite hoppers and two skylights. There is no interior trim on the windows.

Finishes

There are no wall or ceiling finishes in the main factory room. The concrete slab floor in the main room has no finish and is in *fair* condition, with cracks that should be sealed. The raised floor in the shop office is VCT tile.

Furnace Masonry and Chimney

A masonry mass located at the center of the room surrounds the original hearth for heating steel and incorporates a chimney that runs up from the floor towards the roof. A clay masonry wall near the chimney that supports a truss overhead is in *poor* condition.

Other

A damp smelling electrical closet in the southeast corner is lined with beadboard. The sprinkler valve is located at the west wall within a framed enclosure.

Room 101 (East Ell)

Framing

The shed-roofed addition at the east side of the building has 2x6 rafters and 2x4 stud walls. Posts and headers supporting the roof framing are inadequate and should be replaced with appropriately sized members. There is a row of three columns down the center of the room. The sill is in *poor* condition and does not appear to be connected to the foundation wall. Wall sheathing is 1x board

planking and beadboard; roof sheathing is 1x board planking. The original shingled exterior load-bearing wall separating the room from the main factory room is in **poor** condition and should be stabilized and then reinforced.



Foundation

The large granite block and mortar foundation at the high grade (north) side appears to be in **good** condition. The concrete foundation on the low grade side is in **fair** condition.

Insulation

There is no insulation.

Openings

See the exterior section for descriptions of the openings. There is no interior trim on the windows.

Finishes

There are no wall or ceiling finishes in Room 101. The concrete slab floor has no finish and is in **worn** condition.

Rooms 102 – 106 (South Ell)

The south ell was built in two phases. The gabled portion containing the machine shop was original to the building and is framed with heavy timbers and bent trusses; it contains rooms 104-106. The shed-roofed extension was a later addition and contains rooms 102 and 103. Exterior walls are 2x6 stud walls with a 6x6 top wall plate.

Room 102

This room occupies the northeast corner of the shed-roofed portion of the ell and ramps up into the main factory area. The north wall is plank, the east wall is shingled, the south wall is insulated with masonite, and the west wall is stud with foil insulation. All walls are in **fair** condition. The ceiling is framed with shallow rafters and planks. The floor is concrete slab.

Room 103

This room occupies the southeast portion of the shed-roofed extension of the ell. The north wall is masonite on stud (**poor** condition), the east wall is exterior shingle (shingles are in **poor** condition indicating they were quite weathered by the time the addition was constructed), and the south and west walls are stud with horizontal planking (**fair** condition). The floor is raised concrete slab.

Room 104

This space, part of the original gable-roofed ell, comprises a hall joining the main factory area with the exterior through a garage door. The west wall is in *poor* condition. The slab concrete floor is in *poor* condition, with cracks and portions missing.



Room 105

This space has OSB (Oriented Strand Board) walls and ceiling over studs. It has a concrete floor with a raised curb and houses an air conditioning unit.



Room 106

The machine shop has a plank floor and ceiling and whitewashed plank walls. Some roof boards are replacements. The room contains a large collection of machines and tools used to maintain the nail factory equipment.



Room 107

This room comprises the west ell, which joins the main factory room at its northwest corner. The bank built north wall has roughly 15 courses of brick over granite rubble. A water trough along the north and west walls is continuous with the trough in the main factory room. The west wall is post framed with horizontal beadboard; the south wall and ceiling are tongue and groove planks. A blacksmith forge and chimney occupy the center of the room.



Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - No useable fixtures
- Heating and Cooling
 - Gas-fired furnaces and unit heaters in large areas, electric heater in office area. Not ventilated per code
 - Cooling: Propeller fans in large areas, small air conditioning units in office areas

- Electrical Systems
 - Older, non-code compliant
 - Loose and uncovered wiring
 - Inefficient fluorescent lamps
- Detection Systems
 - Smoke in place with inadequate coverage
- Suppression Systems
 - Dry-pipe sprinkler system: inadequate coverage and non-code compliant

Structure

The Factory Building is in *fair* condition overall. There are significant water infiltration issues and a thorough analysis of the foundation, especially at the Elm St. bank, should be undertaken. Walls and the roof should be resheathed as maintenance and repair expose surfaces. Any proposed use of the factory building would require extensive structural analysis and retrofitting to meet current code requirements and achieve structural stability.

Nail Factory Building: Character Defining Features

- Rectangular plan
- Gable roof, ridge monitor, and cupola
- Shingle cladding
- Exposed interior framing
- Six-lite double-hung and hopper windows
- Board and batten doors
- Signs at roof and west wall
- Orientation paralleling Parker Mills Pond and perpendicular to mill chase
- Nail-making machinery in main factory area
- Blacksmith forge
- Machine shop tools and equipment

Significance – Must be Retained

The nail factory building is the defining structure at the site and is essential to its significance. It is the oldest building at the complex and the most meaningful architecturally as a rare surviving 19th century wood frame water-powered mill building. The nail fabricating equipment in the main building, the tool-rich machine shop and the blacksmith forge are compelling visual testaments to the factory's manufacturing past.

Recommended Action

Step 1: Stabilize to Preserve

Make necessary envelope repairs and repair windows and trim. Maintain envelope until time suitable for Step 2

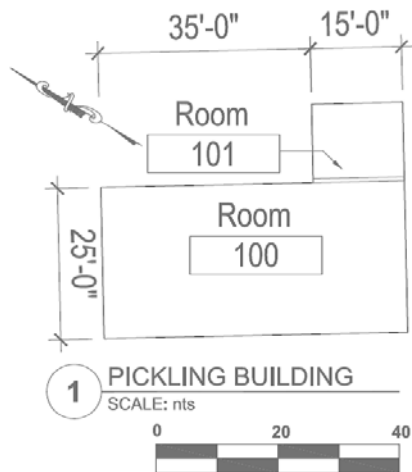
Exterior wall shingles – selected replacement	\$5,600
Reinforce beams in main space with new steel pieces	\$25,000
Restrict access to catwalks and bridges with barriers	\$1,500
Wall shoring between Room 100 and Room 101	\$10,000
West Ell (“Blacksmith Shop”): Rebuild chimney	\$20,000
Main Factory and South Ell: Replace asphalt shingle roof	\$144,000
<u>West Ell (“Blacksmith Shop”): Replace asphalt shingle roof</u>	<u>\$12,000</u>
Total	\$218,100

Step 2: Rehabilitate

Rehabilitate for new use – museum space, artisanal work/sales space, seasonal market space or restaurant. The nail factory building could accommodate several types of use while still retaining its distinctive historic character. Reuse would require making the building accessible and providing plumbing; some options would require heating and cooling. The fire suppression system would require modification to suit the final uses. The rehabilitation costs below are given as a range. It would make perfect sense to only rehabilitate the portion of the building given to new uses, especially since the entire 19,000 square foot building is really comprised of many sections that could easily be partitioned off from areas to be rehabilitated. An example might be to stabilize the building and rehabilitate Room 107 for museum use (at a cost between \$312,000 and \$375,000) while the remainder of the building was maintained, but not actively rehabilitated until a later date. The building remainder could still be available to be interpreted as the historic home of iron nail manufacturing. The progression presented below lists rehabilitation costs based on rooms; see above for the room descriptions

Rehabilitation Level	Rm 100	Rm 101	Rms 102-106	Rm 107	Total
Low Cost Rehabilitation	\$1,987,000	\$360,000	\$375,000	\$187,500	\$2,909,500
Medium Cost Rehabilitation	\$3,312,000	\$600,000	\$625,000	\$312,500	\$4,287,000
High Cost Rehabilitation	\$3,975,000	\$720,000	\$750,000	\$375,000	\$5,820,000

PICKLING BUILDING (SHEARING SHED), PRE-1896



The Pickling Building is a one-story, gable-roofed rectangular building measuring roughly 1,450 square feet in area with a monitor on the ridge at the south end. A small shed-roofed rectangular concrete block addition on the southeast corner measures roughly 15' x 13'. The building rests on a concrete block (CMU) foundation wall. The building has a concrete slab floor. The interior is largely open with exposed wall and ceiling framing.

The building has a weathered exterior but a relatively watertight interior.



Exterior

Roof

The gable roof is covered in three-tab asphalt shingles in *fair* to *good* condition. The tar and gravel roof on the addition is in *poor* condition with moss and plant growth.

Chimneys

A cylindrical metal chimney and chimney vent exit the roof of the addition.

Flashing

Aluminum flashing on the gabled building is in *fair* condition. The gravel stop flashing on the tar and gravel roof is in *poor* condition. The openings trim is flashed at heads and sills.

Gutters and Downspouts

There are no gutters or downspouts.

Walls

Exterior walls of the gable-roofed building are wood shingles left to weather. Shingles are in *worn* condition and should be replaced on the west wall. The bottom three courses on the east wall are in *poor* condition and should be replaced. Shingles on the north and south walls are in *good* condition. The east wall of the concrete block addition is *worn*, covered in moss and has three full-height cracks. The north wall is also *worn* and mossy with black discoloration and a broken block. The broken blocks should either be replaced or epoxy grouted to prevent moisture infiltration and lessen the chance of expansion of the cracking.

Openings

There are 13 windows at the Pickling Building, including three on the west side of the monitor. All have a six lite pattern in either hopper or double hung configurations. Windows are wood with the exception of two steel windows in the addition. The overall condition of the windows is *worn*. All require paint and reglazing, and many require glass replacement and sash repair. One window sash should be completely rebuilt. The metal windows are badly rusted. Four windows are boarded over.

The Pickling Building has three doors, including a 12' sliding barn door at the north elevation, a 12' steel overhead door with a shallow raised shed roof on the east side, and a door at the north side of the addition. The wood doors are *worn to fair* and require painting and various levels of repair. Operation of all doors was not confirmed, but it is strongly likely that they will require hardware adjustment to open and close smoothly.

Trim

All trim on the Pickling Building is wood and requires painting. Half the sills and window casings, and the bottoms of six corner boards, should be replaced. In general the trim is in *worn to fair* condition.

Foundation

The concrete foundation is cracked in places and is in *fair* condition.

Interior

Room 100

This room contains machinery, storage furniture, manufacturing supplies, and control boxes. The open-framed room shows no visible leaks.



Framing

The room is stick 4"x 4" framing with diagonal bracing, 3" x 6" rafters, and tongue and groove roof sheathing. The condition of the framing is generally *poor*. Please see the Coastal Engineering structural report for a more detailed description of condition.

Insulation

There is no insulation.

Openings

See the exterior description for wood window conditions.

Finishes

There are no ceiling or wall finishes. The floor is undressed concrete slab in *fair* condition with cracks that should be sealed.

Room 101

This small addition, used for painting, is vented through the roof.

Framing

The room is constructed of CMU (concrete block). See the exterior condition description regarding cracking of the blocks.

Insulation

There is no insulation.

Openings

See the exterior description for steel openings condition. There is no interior trim work at the openings.

Finishes

The ceiling has no finish. The walls are painted CMU. The concrete floor has no finish and is in *fair* condition with cracks that should be sealed.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - No usable fixtures.
- Heating and cooling
 - Gas-fired infra red heating systems not ventilated per code
 - No cooling.
- Electrical Systems
 - Older, non-code compliant.
 - Loose and uncovered wiring.
 - Inefficient fluorescent lamps.
- Detection Systems
 - Smoke and heat in place with adequate coverage
 - No intrusion system evident.
- Suppression Systems
 - No sprinklers
 - No observed extinguishers.

Structure

The Pickling Building structure is *poor* and currently unsuitable for active use. The foundation, sills, wall framing, and roof framing require reinforcement.

Pickling Building: Character Defining Features

- Rectangular plan
- Gable roof
- Shingle cladding
- Exposed interior framing
- Roof monitor
- Six-lite hopper and double-hung windows
- Sliding barn door pair at gable end
- Proximity to Packaging Building and Nail Factory Building.

Significance – May Be Retained or Removed

This building has been greatly altered since first constructed and has seen several uses. It first appears on Sanborn maps in 1896 and half of the building on the map was labeled store house. That section was demolished by 1912. In the 1930s or 40s the surviving portion of the building became the pickling room. It is possible that the concrete block addition was built about the same time. The acid cleaning process for steel was supplanted by a newer aggregate peening method in the 1970's and the pickling operation moved to the Steel Building. Shearing (essentially cutting steel plate to sizes needed by the nail making process) was still done at the "Pickling Building".

Of the extant buildings on site, this is probably the most significantly altered. Its historic integrity stretches back only to the 1970s, when it was assigned its final use as the shearing shed.

Recommended Action

The Pickling Building is in the worst condition of the extant buildings at the factory complex. It is a small size building, but requires extensive structural work to stabilize for any use. The building served multiple functions over time and was accordingly altered, but the expense of restoring the extant building may not be warranted given its altered condition.

Step 1: Stabilize to Preserve

End any uses of the building for storage and supplement existing structure with rough framing and diagonal bracing. Make necessary envelope repairs and repair windows and trim. Maintain envelope until time suitable for Step 2.

Wall shingles	\$5,600
Lumber Shoring	\$2,500
Windows (13)	\$3,750
Trim repair	\$2,400
<u>Paint trim</u>	<u>\$2,400</u>
Total	\$15,650

Step 2: Disassemble

As funds are available, disassemble structure and retain and store historic elements such as openings and salvageable heavy timber for use in reconstruction. Remove block addition.

Disassemble wood frame	\$12,500
<u>Demolish block addition</u>	<u>\$1,500</u>
Total	\$14,000

Step 3: Reconstruct

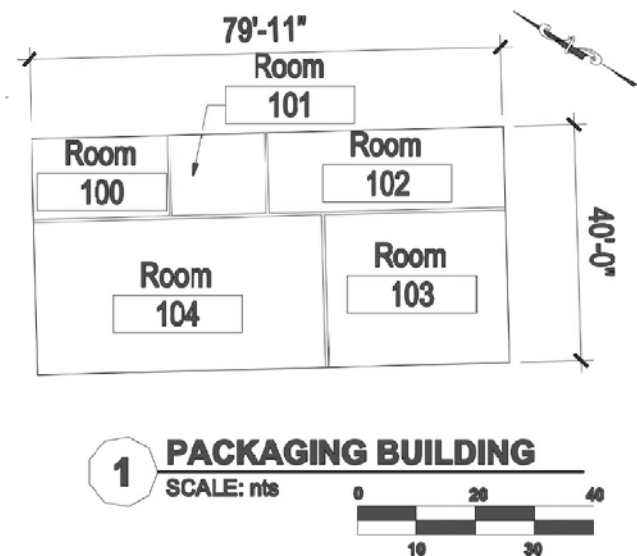
This step is purely optional. The reconstruction would be up to code and could have interior elements designed at any of the rehabilitation levels. At a later date reconstruct on new footings with framing up to code. Install new electrical. Ideal storage space for items not requiring climate control. Large doors would allow easy retrieval of bulky items or even a vehicle.

Reconstruct wood frame Pickling Building	\$217,500
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At any step:

Consider gutter and downspout installation and coordination with site water management to control roof run-off and impact on the river, wet lands and paved area.

PACKAGING BUILDING (C. 1957)



The Packaging Building is a one-story, gable-roofed rectangular building measuring roughly 3,200 square feet in area. The building rests on a concrete block foundation wall with up to three courses of blocks exposed at the lowest grade. The building has a concrete slab floor on two levels with a transiting concrete slab. The interior is divided into five rooms.

The building exterior is in relatively good condition. The interior finishes are simple and show accumulated wear and tear reflecting the factory use, but are intact.



Exterior

Roof

The gable roof is covered in three-tab asphalt shingles in *good* condition.

Flashing

Aluminum flashing on the gabled building is in *good* condition.

Gutters and Downspouts

There white aluminum gutters and downspouts that drain directly onto the grass on the west side and the pavement on the east side. The gutters are in *good* condition.

Walls

Exterior walls of the gable-roofed building are wood shingles left to weather. The bottom three courses on the west and east walls are in *worn* condition and should be replaced. Shingles on the north and south walls are in *good* condition.

Openings

There are 12 windows at the Packaging Building, including two in the “attic” on the gable ends. All have a six lite pattern in either hopper or double hung configurations except one replacement window in the south gable. Windows are wood with the exception of the replacement. The overall condition of the windows is *fair*. All require paint and reglazing.

The Packaging Building has three sliding barn doors, including a 10’ tall sliding barn door at the south elevation which extends lower than the interior slab by a foot. There is a single swing door into Room 101. The wood doors are *worn* and require painting and repair, especially the north barn doors along the base where high water and weather have caused considerable deterioration. Operation of all doors was not confirmed, but it is strongly likely that they will require hardware adjustment to open and close smoothly.

Trim

All trim on the Packaging Building is wood and requires painting. In general the trim is in *fair* condition.

Foundation

The concrete foundation is cracked in places and is in fair condition.

Interior

Room 101

This has two floor levels divided by a concrete ramp that leads from exterior grade up to the floor level of the remainder of the building.

Framing

The room is stick 2x6 framing with a 4x6 sill and double 2x6 top plate.

Insulation

No insulation.

Openings

See the exterior description for wood window conditions. There is no interior trim.

Finishes

There are no ceiling or wall finishes. The floor is undressed concrete slab in *fair* condition.

Room 101

A small rectangular room with green painted walls, a swing door to the exterior and rudimentary counter space.

Framing

Not visible. Assumed same as room 100.

Insulation

None visible.

Openings

See the exterior description conditions. There is no interior trim work at the openings.

Finishes

The walls are painted wall board material that is bowing between connections to the studs. Ceiling is stained, unpainted wall board. The concrete floor has no finish. All finishes are between **worn** and **fair** condition.

Room 102

A narrow, rectangular room with a large exterior barn door at the east end.

Framing

The room is stick 2x6 framing with s 4x6 sill and double 2x6 top plate.

Insulation

No insulation.

Openings

See the exterior description for wood window conditions. There is no interior trim.

Finishes

The west and south walls are finished with unpainted wall boards. The other walls and ceiling are unfinished. The floor is undressed concrete slab. All finishes are between **worn** and **fair** condition.

Room 103

A large, roughly square room with large doors leading into room 104 and a ceiling with a high bay.

Framing

Not visible. Assumed same as room 100.

Insulation

None visible.

Openings

See the exterior description conditions. There is no interior trim work at the Openings.

Finishes

The walls are painted wall board material that is bowing between connections to the studs. Ceiling is white painted wall board. The concrete floor has no finish. All finishes are between **worn** and **fair** condition.

Room 104

A large rectangular room accessed from the exterior through room 100 and with two large doorways into room 103.

Framing

The room is stick 2x6 framing with s 4x6 sill and double 2x6 top plate.

Insulation

One layer of batt insulation with kraft paper lining is installed between the studs and without kraft paper between the ceiling joists. A vapor barrier is installed over the ceiling batt. Insulation condition was undetermined.

Openings

See the exterior description for wood window conditions. There is no interior trim.

Finishes

The walls and ceiling are unfinished. The floor is undressed concrete slab in **fair** condition with cracks that should be sealed.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - No usable fixtures.
- Heating and cooling
 - Gas-fired infra red heating systems not ventilated per code
 - No cooling.
- Electrical Systems
 - Older, non-code compliant.
 - Loose and uncovered wiring.
 - Inefficient fluorescent lamps.
- Detection Systems
 - Smoke and heat in place with adequate coverage
 - No intrusion system evident.
- Suppression Systems
 - No sprinklers
 - No observed extinguishers.

Structure

The Packaging Building structure is in **fair** shape overall. The wood sill is not anchored to the concrete block foundation, but otherwise further investigation of roof anchoring is the only pressing item.

Packaging Building: Character Defining Features

- Rectangular Plan
- Gable roof
- Shingle cladding
- Exposed interior framing
- Six-lite double-hung windows
- Sliding barn doors
- Proximity to Pickling Building and Freight Building
- Orientation with axis paralleling Freight Building and Wankinco River

Significance – May Be Retained or Removed

This building, constructed in the mid-20th century is built over the location of the south half of the Pickling Building torn down by 1912. Historic maps show it straddling railroad tracks, allowing steel to be unloaded under cover. The large barn door on the east gable end may have been large enough to admit a flat-bed rail car, but the current, raised slab floor hides any evidence of historic tracks. The building was constructed after 1927.

Recommended Action

The Packaging Building is the most stable of the historic factory buildings. It is a medium size building that could serve multiple future uses. Like all the factory buildings, the interior is sparse and unsuited for immediate public use, but could easily continue to be used for storage of materials that do not require environmental controls (these should also be stored off the slab since the building is within the 100 year flood plain of the Wankinco.) It is quite possible to further renovate for future use. While not individually significant for its function, the packaging building is integral to understanding the complexity and density of the factory operation on the site.

Step 1: Stabilize to Preserve – Simple Storage Use

Make necessary envelope repairs and repair windows and trim. Repair doors for security and safe operation. Paint previously painted wood. Paint windows. Replace wood shingle siding in locations noted above. Maintain envelope until time suitable for Step 2. Regrade high ground at edges so water is directed away from foundation and siding.

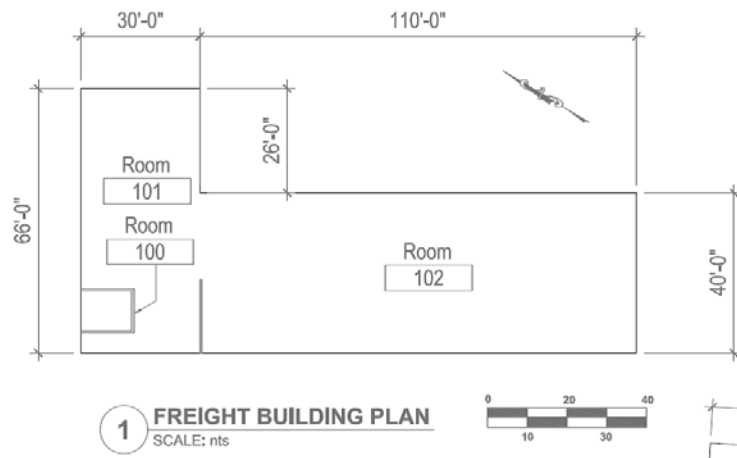
Regrade for better drainage	\$500
Patch cracks, seal concrete floor	\$3,200
Anchor frame to sill and rafters to top plates	\$5,000
Selected wood shingle siding repair	\$3,840
Windows (12)	\$3,000
Door repair(5)	\$5,000
<u>Paint trim</u>	<u>\$5,400</u>
Total	\$25,940

Step 2: Rehabilitate

Rehabilitate for public use – office space, meeting space, retail space. Would require making the building accessible and providing plumbing, heating and cooling. Extend fire suppression into the building if not done at an earlier step.

Low Cost Rehabilitation	\$480,000
Medium Cost Rehabilitation	\$800,000
High Cost Rehabilitation	\$960,000

FREIGHT BUILDING (C. 1848 AND LATER)



General Description



The Freight Building is a 1-story, gable-roofed building. The form is essentially two rectangles, one measuring approximately 110'x40' and built around 1848 and another, smaller rectangle measuring roughly 66' x 30' and built around 1900. The second rectangle is placed at a right angle to the first and together describes an L-shaped plan with the short leg aligned east-west and the long leg oriented north to south. The granite block foundation of the east side of the building rises from the Wankinco River. This wall has a series of doors that originally opened directly onto the decks of river traffic. The western foundation is not visible.



The 6,400 square foot interior is largely open with unfinished walls and ceilings, a line of columns along the demising line between the two parts, and a small office on the north wall between the garage door and a swing door.

Exterior

Roof

The west and south slopes of the three-tab asphalt shingles are in *poor* to *worn* condition with aggregate eroded from some surfaces, mismatched patches and missing shingles. The east slopes are in *poor* condition with missing shingles, worn out shingles and heavy moss growth. The north slope is in *poor* to *worn* condition with condition worsening closer to the river. Severely deteriorated wood shingle ends can be seen beneath the drip edge of the asphalt shingles along the west slope. These might be remnants of earlier roofing extant under the asphalt shingles. The roof of the long gable dips visibly between the roof trusses. See the structural evaluation for more comment on the framing.



Chimney

The slender, square chimney is laid in a running bond up to the cap. There appears to be a slight cement wash at the top. The chimney vents a cast iron wood stove in the Freight Building. The exterior is in *fair* condition and requires selective repointing. See comment about flashing below.

Flashing

Flashing is limited at the Freight Building. No valley flashing is visible where the gables intersect, but the closed valley formed by the asphalt shingles may be concealing previous flashing. There is no drip or rake flashing. None of the openings trim is flashed at heads or sills. The step flashing at the chimney is probably in *poor* condition as evidenced by the deterioration of the masonry at the interior.

Gutters and Downspouts

There are no gutters or downspouts. Direct roof run-off exacerbates the perimeter flooding along the west side and south sides of the building.

Walls

The single-story exterior walls are wood shingles left to weather. West wall shingles are in **worn** condition. The bottom six courses are in **poor** condition, completely bleached and will deteriorate much more rapidly than the shingles above. Shingles are missing at some of the openings. The north wall shingles are in **worn** to **fair** condition. East wall shingles are in **poor** to **worn** condition with shingles worn paper thin at the intersection of the two rectangular plans and quite **worn** on the east gable end and overgrown with vines. The south wall shingles are in **worn** condition. They are cupped and weathered.

Openings

There are 21 windows at the garage building, all with a six over six lite pattern. The overall condition is **worn**. All require paint and should be reglazed. Many have dropped meeting rails or loose joinery. At least three are boarded; they are in **poor** condition and require extensive repair to the sash.

The Freight Building has nine doors, all of which require painting and various levels of repair. Overall the doors are in **fair** condition. Operation of all doors was not confirmed, but it is strongly likely that all doors will require hardware adjustment to open and close smoothly.

Trim

All trim on the Freight Building is wood and requires painting. In general the trim is in **poor** to **fair** condition. Window and door head casing has no flashing. Sills require epoxy repair. The fascia on the east and west elevations and the drip trim should be replaced. The rake at the east gable end should be replaced. The boxed soffits are in **fair** condition.

Foundation

Along the river elevation the foundation is also the stone bulkhead along the Wankinco River and can be seen as a collection of massive, rough-faced granite blocks rising out of the water. The bulkhead continues north to the Factory building. The foundation is in **fair** condition with some reconstruction required at the stacked stone protecting the south toe of the bulkhead adjacent to the public river access. Some stones of the retaining wall have been displaced and no mortar is visible in the joints of the stone.



Interior

Room 100

This small room contains sprinkler valves, control boxes and a cast iron heating stove. It is a box within the larger open space of the Freight Building.



Framing

The room is stick framed with horizontal bead-board cladding on the exterior and a combination of press-board paneling and drywall on the interior and ceiling. The framing appears to be in *good* condition.

Insulation

Fiberglass batt insulation with paper backing is laid between the ceiling joists. No wall insulation was visible. The insulation appears to be in *fair* condition. Insulation performance for the space is probably fair to poor.

Openings

Two six over six wood windows allow outside light into the room. These windows have simple, flat stock trim and sills. They have been winterized with thin sheets of plastic. There is a single, interior, wood six-panel door into the room that is in fair condition and an interior wood sliding window with two vertical lites in each sliding panel. The window opens out to the passage into Room 101. The openings are in *fair to good* condition.

Finishes

Paint on the exterior of the room is in *fair* condition and could be repainted. Interior walls and ceiling are unfinished plaster or press-board paneling in *fair* condition. The concrete floor has no finish, is cracked and in *fair* condition.

Room 101

This large, open space fills the remaining volume of the Freight Building from slab to wall and roof framing. A short demising wall stands at about a third the width of the intersection between the long and short bays. A slender brick chimney outside Room 100 vents the cast iron heating stove.



Framing

Both sections of the Freight Building are heavy timber framed with stud and rafter infill between the timber bents. Purlins span between the timber trusses at both sections of roof. Some posts are rough tree trunks. See structural section for comment on conditions.

Insulation

No wall or ceiling insulation was visible.

Openings

Doors and windows all open to the outside. See the exterior description for openings condition. There is no interior trim work at the openings.

Finishes

All framing and plank sheathing is exposed and unfinished. The partial partition is painted white. The concrete floor has no finish and is in *fair* condition.

Chimney

The chimney is in *poor* condition. The mortar is completely gone from the base and the bricks are deteriorating. Since the chimney is unsupported for most of its height, the deteriorated condition of the base should be addressed immediately.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - No usable fixtures.
- Heating and cooling
 - Gas-fired infra red heating systems not ventilated per code
 - Wood stove in Room 100.
 - No Cooling.
- Electrical Systems
 - Older, non-code compliant.
 - Loose and uncovered wiring.
 - Inefficient fluorescent lamps.

- Detection Systems
 - Smoke and heat in place with adequate coverage.
 - No intrusion system evident.
- Suppression Systems
 - Dry pipe sprinklers in place, actively tested, but head spacing too great to meet current code.
 - No observed extinguishers.

Structure

The Freight Building structure is in *fair* shape overall. The wood sill is generally deteriorated and should be replaced and anchored to the foundation and some of the posts supporting the roof framing should either be reinforced or replaced. The present floor slab is elevated above the sills with a gap between the edge of the slab and the wall framing where debris and dirt accumulate.

Freight Building: Character Defining Features

- Shingle cladding
- Exposed interior framing
- Six-lite double-hung windows
- Bulkhead on river side
- Setting on river bank aligned with watercourse

Significance – Must Be Retained

The older portion of this building may date back to the Parker Mills and the addition is older than the 1896 Sanborn map. It is key to understanding the factory site appearance and operation in the 19th century. This building was used for nail storage and reflects three distinct eras of shipping at the site – river, train and truck. There is also reuse potential for the structure.

Recommended Action

The Freight Building is structurally stable, but the envelope requires repairs to be made weather tight. Its open interior and proximity to the river suggest near term re-use associated with river recreation. Future uses could take further advantage of the riverfront location. The building is large enough for multiple uses.

Step 1: Stabilize to Preserve – Simple Storage, Seasonal Concession Use

Replace roof. Repair windows and trim. Repair doors for security and safe operation. Paint previously painted wood. Paint windows. Replace wood shingle siding in locations noted above. Replace sills where deteriorated in coordination with siding repair. Maintain envelope until time suitable for Step 2. Regrade high ground at west elevation to expose at least eight inches of foundation below the siding and to direct water away from the building. Repoint lower third of chimney at slab.

Regrade for better drainage	\$800
Patch cracks, seal concrete floor	\$6,400
Rebuild stone diverting wall at bulkhead	\$2,500
Repoint base of chimney	\$1,500
Replace wood sills	\$26,240
Selected wood shingle siding repair	\$114,000
Replace asphalt shingle roof with same	\$63,000
Windows (21)	\$5,250
Door repair(9)	\$4,500
<u>Paint trim</u>	<u>\$5,400</u>
Total	\$229,590

Step 2: Rehabilitate for Public Use

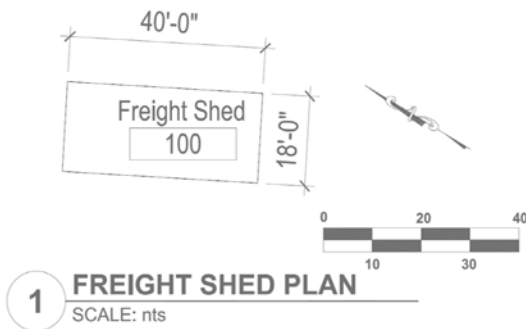
Would require making the building accessible and providing plumbing, heating and cooling.

Light Cost Rehabilitation	\$960,000
Medium Cost Rehabilitation	\$1,600,000
High Cost Rehabilitation	\$1,920,000

At any step:

Consider gutter and downspout installation and coordination with site water management to control roof run-off and impact on the river, wet lands and paved area.

FREIGHT SHED (C. 1900)



General Description

The Freight Shed is a 1-story, gable-roofed building built around 1900. The plan is rectangular, measuring about 40 x 18 feet and raised about two feet above the ground on a series of concrete block piers. It appears to have been a storage building associated with the adjacent, now overgrown rail road tracks.

The interior is an open volume with unfinished walls and ceilings.



Exterior

Roof

The three tab asphalt shingle is in *fair* condition. The shingles are weathered. Open rafters and sheathing are visible at the eaves. A modest overhang is provided at both rake ends by exposed outriggers at the gable end walls.

Flashing

There does not appear to be any flashing at the drip or rake. The ridge is capped with an asphalt shingle ridge cap.

Gutters and Downspouts

There are no gutters or downspouts. Direct roof run-off exacerbates the perimeter flooding at the north side of the building.

Walls

The single-story exterior walls are red painted vertical planks in *fair* condition that require paint. Many boards are moderately deteriorated at the base, but this does not appear to extend above a few inches. Some boards have been replaced in the last ten years.

Openings

There are two window openings. One is boarded over and the window has been removed. The remaining six over six window is in *fair* condition and requires painting and glazing. There are three sliding doors, one each in the north, east and west walls. These are freight doors faced with vertical, grooved boards and overhead track hardware at the interior. The doors are in *poor* to *fair* condition and require painting and extensive repair at the thresholds, which are quite deteriorated.

Trim

All trim on the building is wood and requires painting. In general the trim is in *fair* condition with several spans of wood that should be replaced. Window and door head casings have no flashing. As noted above, door thresholds require epoxy repair. Half the fascia on the east elevation is missing and should be replaced. The rake at the east gable end should be replaced.

Foundation

The building sits on concrete block piers, nine of which were observed on the east and west sides with a similar number assumed to run in one or two rows down the center. The building frame rests directly on the piers. The piers appeared to be in *worn* condition.

Interior

Room 100

This single, rectangular room is an open volume from floor to roof framing.

Framing

The shed is stick framed with vertical studs spaced nearly 4' apart and horizontal boards spanning between the boards in three vertical rows. The vertical board exterior cladding is nailed to these boards. The studs end at a square top plate. Rafters spaced at about two feet on center support the roof. A cross tie at each rafter pair spans the width of the shed from plate to plate. Floor framing is not visible. See the structural report for comment on framing condition and capacity.

Insulation

There is no insulation.

Openings

See exterior comments for openings condition. There is no interior trim at windows or doors.

Finishes

Interior walls and ceiling are unfinished framing members. The wood plank flooring is unpainted but appears to be level and in *fair* condition with some boards requiring replacement.

Overall

Mechanical, Electrical and Plumbing

The building has no mechanical, electrical or plumbing systems.

Structural

The foundation is in *worn* condition and the blocks should be replaced. Framing should be secured to the new piers. Place additional studs in wall framing to align with rafters. Install interior plywood sheathing. Add additional rafters to lessen roof load.

Freight Shed: Character Defining Features

- Vertical board cladding
- Exposed interior framing
- Six-lite double-hung windows
- Freight doors

Significance – May Be Retained or Removed

There is no definitive date of construction for the Freight Shed. It appears on the 1912 Sanborn map, but earlier maps did not include this portion of the site. It is preferable to retain the building for two reasons. First, it was constructed during the 1848-1927 period and defines the southernmost known expansion of the factory site. Second, the structure rests within what is likely the 50 foot buffer of the wetlands area on the south portion of the site and is a previous disturbance to this sensitive area. Therefore renovation may be possible whereas new building construction would be difficult to justify.

Recommended Action

The Freight Shed is located near both the river access and the wetlands area. The building should continue as a storage space affiliated with river use or some wetlands related function.

Step 1: Stabilize to Preserve

Repaint exterior, repair window and replace missing window. Make envelope weather tight to keep building in present condition or better.

Replace Asphalt Shingle Roof with same	\$6,000
Windows (2)	\$1,250
Door repair (3)	\$3,000
Siding repair	\$500
Trim repair	\$2,000
<u>Paint</u>	<u>\$5,000</u>
Total	\$17,500

Step 2: Consider Options

Meet informally with Conservation Commission regarding potential rehabilitation of building. Note replacement of piers and introduction of electricity to support seasonal use for storage as goals.

Step 3: Rehabilitate for Seasonal Storage

Install new piers, make structural repairs. At this step or in a fourth step, install new electrical to support seasonal storage use related to river or wetlands.

New footings, added framing	\$10,000
<u>Electrical</u>	<u>\$5,000</u>
Total	\$15,000

At any step:

Consider gutter and downspout installation and coordination with site water management to control roof run-off and impact on the river, wet lands and paved area.

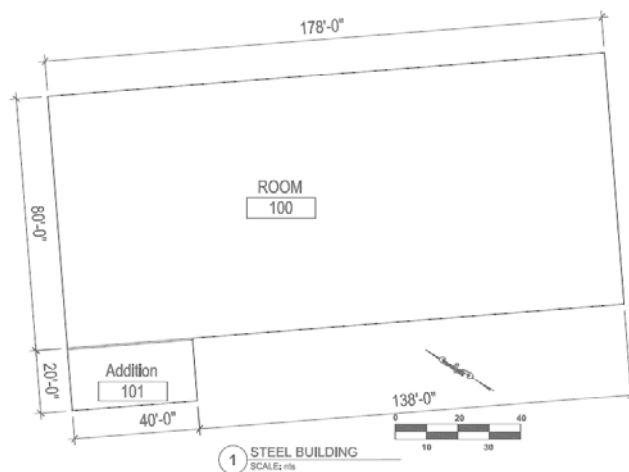
STEEL BUILDING (1976-1977)

General Description

The steel building is a modern, large, pre-fabricated component, 1-story metal building with a shallow pitch gable roof and lower, shed roof section at the north corner of the west wall. The metal walls and framing are typical of factory component-built modular warehouse and light industrial buildings.

The interior is large open volume with a single line of columns down the long axis.

The building was the final location for manufacturing and shipping of the Tremont Nail Company product at the Wareham site. It is assumed that the building is in good condition with wear and tear commensurate with its limited time in use for manufacturing.



Exterior

Roof

The roof is a very low pitch, white membrane roof. The roof was not observed but is assumed to be in **good** condition.

Flashing

There is flashing at the roof edges and the window and door heads. Additional flashing covers the tops and bottoms of the wall panels. The flashing is in *good* condition.

Gutters and Downspouts

There are gutters and downspouts on the east and west elevations. The downspouts empty onto splash blocks. Grading is sloped to direct run-off away from the building. The roof drainage system is in *good* condition.

Walls

The metal walls are panels with vertical fluting for rigidity. They are factory finished in an off-tan color. Dirt is showing on the walls and a good cleaning is warranted. The condition appears *good*.

Openings

There are two metal, slab, swing doors and two large overhead doors. Windows are aluminum sliding windows. All openings are in *fair to good* condition.

Trim

Trim is integrated with the metal panels that make up the walls.

Foundation

The building sits on a concrete slab on grade with the load bearing steel columns resting on concrete footings.

Interior

Room 100

This single, rectangular room is an open volume from floor to roof framing.

Framing

The steel framing is exposed.

Insulation

There wall panels may have integral insulation. No other insulation was visible.

Openings

See exterior comments for openings condition. There is no interior trim at windows or doors.

Finishes

Interior walls and ceiling are metal panels with factory finish. The concrete flooring is in *fair* condition with cracks that should be sealed.

Room 101

This space was not observed.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - Plumbing fixtures are not water saving.
 - Facilities are not handicap accessible.
- Heating and cooling
 - Gas-fired heater appears functional and up to code.
 - No cooling.
- Electrical Systems
 - New and code compliant.
- Detection Systems
 - No smoke or heat detectors.
 - No intrusion system evident.
- Suppression Systems
 - Sprinklers in place, actively tested, with appropriate head spacing for adequate coverage.

Structural

Steel building structure is in *good* condition with some irregularities that date back to construction and should be addressed.

Steel Building: Character Defining Features

Not Applicable

Significance – May Be Removed

The Steel Building is an unremarkable structure. Its generic appearance and construction have no relationship to the historic practice of nail manufacturing at the site.

Recommended Action

The steel building is a usable structure that provides some revenue to the town. Continued use is a prudent course until higher use of the location becomes a viable option.

Step 1:

Restore cross bracing cables. Add leveling grout under column base plates.

Repairs as noted \$3,500

Step 2:

Continue leasing to commercial tenants.

Step 3:

Remove when higher use of location becomes viable option.

Remove and clean site \$142,500

At any step:

Consider gutter and downspout run-off coordination with site water management.

OFFICE BUILDING (C. 1848 AND LATER)



General Description

The Office Building is a 2-story, hip-roofed rectangular building measuring approximately 46' x 34' and constructed around 1800. A late-twentieth century 1-story rectangular hip-roofed addition measuring approximately 60' x 25' was placed perpendicular to the older building and describes an L-shaped plan; the original building (main block) is aligned north-south, facing Elm Street, and the ell is oriented east-west. There is a full basement under the entire structure. The main block has a rubble foundation with an exterior facing of ashlar granite block; the ell's foundation is poured-in-place concrete. The original building is bank built on the east side; access to the basement level is provided by a break in the retaining wall.



The office space on the first floor interior was renovated circa 1970s with paneled walls and partitions. The second floor retains its original three-room configuration. Physical evidence (lack of fireplaces, windowless east and west walls) suggest non-residential use of the building since its date of construction. The vinyl siding and shutters detract from the building's appearance and compromise its historic and architectural integrity.

Exterior

Roof

Shallow hipped roofs on both building units are covered with architectural asphalt shingles; the shingles are in **good** condition. The roof over the original building visibly dips towards the southeast corner, suggesting weakness in the roof framing.

Chimney

The small brick stove vent chimney on the east side of the roof is in **worn** condition and should be repointed.

Flashing

There is flashing at the roof edges and at the window and door heads on the main (north) facade. Flashing at the chimney appears to be recently installed and in **good** condition. Flashing was not observed but was assumed to be in place at the window and door heads on the east, west, and south elevations, as part of the vinyl siding envelope.

Gutters and Downspouts

There are gutters on all elevations and downspouts on the east, west and south sides of the building. The system is in generally **good** condition, although water damage seen at the cornice line on the south and west elevations indicate failures near gutter/downspout intersections. The lower segment of downspout near the door on the east wall has fallen off and should be reattached. The downspouts empty onto splash blocks. Grading is sloped to direct run-off away from the building.

Walls

All elevations are sided with vinyl with the exception of the main façade (north elevation), which is sided with clapboard. The vinyl siding is in **good** condition. The clapboards are in **worn** condition and require painting.

Openings

There are 12 window openings in the main block, including five twelve over twelve and five six over six windows. These windows, some apparently original to the building, are in **poor** condition and require sash repair, glazing and painting. The ell has 13 modern windows in **fair** condition with a variety of lite configurations. All windows are fitted with metal storms. Metal basement windows at the ell are in **fair** condition and are rusted and require paint.



There are four doors, including two at the north elevation (one each in the original block and the ell), one at the south, and a larger delivery/freight door at the east wall. The doors in the original building, which are a century old or older, are in *poor* to *fair* condition and require painting. The threshold at the front door is severely deteriorated and should be repaired and painted. The metal door on the north side of the ell is in *fair* condition, is rusted and requires painting.

Trim

All trim on the original building, as well as sills, door surrounds and thresholds on the ell, is wood and requires painting. In general the trim is in *fair* condition. The painted wood sign over the entrance is in *fair* condition and should be painted and regilded. Vinyl shutters flank all the windows in the building with the exception of the south elevation; these are in fair condition.

Foundation

The main block rests on a rubble foundation faced on the exterior with granite ashlar block. The ell sits on a concrete block foundation. Both foundations appear to be in *good* condition.

Other

The concrete steps at the main entrance are cracked. Those at the north entrance to the ell have separated from the building. Both are in *poor* condition.



Interior

Basement

The full-height basement under the main block is rubble-walled with a slab floor; it has outside access through the freight door. The basement under the ell is poured in place concrete. An open wood stairway in the southwest corner of the ell provides access from the first floor. Conditions are generally *worn* to *fair* in the main block basement, where there is standing water and evidence of persistent moisture problems.

Framing

The main block basement is timber framed over a rubble foundation; four Lally columns provide additional support. The basement in the addition is modern poured-in-place concrete construction with 2"x8" floor joists; a row of steel Lally columns runs the length of the room. Materials in the main block are in *worn* to *fair* condition; those in the ell are in good condition.



Insulation

There is no visible insulation in the main block. The ell has full batt ceiling insulation.

Openings

See exterior comments for openings condition. The main block has a single 12 over 12 window in the east wall and a board and batten freight door. The addition has two two-lite metal windows at each of the east, west and south walls.

Finishes

There are no finishes in the basement.

Other

The stove chimney base on the east wall is in **worn** condition and should be repointed.

First Floor

The first floor, including the original building and the ell, was renovated and partitioned in the late 20th century. It comprises open office space with low partitions in the original building and discrete offices, a kitchen, and two bathrooms in the ell. The first floor was in active use until the relocation of Tremont Nail Company in 2006.



Framing

Framing in the ell is not visible but is assumed to be stick framing.

Insulation

There is no visible insulation.

Openings

See exterior comments for openings condition. Windows in the main block, which are early or original, are 12 over 12 and 6 over 6. Windows in the ell are modern wood (Brosco) throughout and are in *fair* condition. All trim dates from the renovation.

Finishes

The clear wood paneling, trim and slab doors are in *good* condition. The textured plaster ceiling with mounted fluorescent lighting is also in *good* condition. The floor is carpeted throughout with the exception of the two bathrooms and rear entrance foyer, which are vinyl floored. The flooring material is in *fair* condition.

Other

The stove chimney extending from the second floor of the main block to the basement is enclosed in wall board.

Second Floor

The second floor contains three rooms – two roughly equal-sized rooms at the north elevation (Rooms 201 at the east and 202 at the west) and a full-width room at the south (Room 200) accessed by a small staircase on the west side of the building. The finishes of the second floor are in an advanced state of deterioration and the spaces have not been in active use for many years.

Framing

The building is timber framed with cased corner posts and visible vertical framing members. Split lath can be seen on the walls and ceiling where deteriorated plaster has fallen off. The framing appears to be in *fair* condition, with the exception of Room 202, where the floor slopes significantly toward the center of the building and further investigation is required to determine the framing conditions of the second floor. A narrow steel rod extends through the floor to the rafters in Room 200. Floors in the front rooms are original wide plank; the floor surface in the rear room is plywood.

Insulation

There is no visible insulation.

Openings and Trim

See exterior comments for openings condition. Simple flat trim creates a baseboard and surrounds the windows and doors. Two four-panel board doors appear to be original to the building. All trim requires paint.

Finishes

The unpainted wood floors are in BI condition. The plaster is in *poor* condition; approximately one-half of the wall and ceiling plaster throughout has fallen



off, revealing the lathe and cluttering the floor. Nineteenth century wallpaper, in *poor* to *worn* condition, covers much of the remaining plaster.



Other

The brick stove chimney extending from floor to ceiling in Room 200 is in *fair* condition.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - Plumbing fixtures are not water saving.
 - Facilities are not handicap accessible.
- Heating and cooling
 - Gas-fired heater appears functional and up to code.
 - No cooling.
- Electrical Systems
 - New and code compliant
 - 50kVA generator adjacent to building, slightly rusting. Not tested.
- Detection Systems
 - Smoke detectors provide adequate coverage.
 - No intrusion system evident.
- Suppression Systems
 - No Sprinklers
 - No extinguishers seen

Structural

The Office Building structure is *fair* in the original section where it could be observed and in *good* condition in the addition. Further investigation of the second floor is required.

Office Building: Character Defining Features

- Stone retaining walls
- Clapboard siding
- 12 over 12 and 6 over 6 windows
- 12-lite paneled front door
- Entrance door surround
- Sign over entrance
- Exterior corner boards
- Freight door
- Interior (second floor): corner posts, original doors and hardware, original trim, coat pegs, stove chimney

Significance – Must be retained

The Office Building is significant to the entire story of manufacturing at the site. Architecturally it is a good example of its building type and historically it is as old as the factory building. It is important to remember that the mill operations were coordinated from this building. The contrast between the domestic scale and subtle ornamentation of the office and the massive and pragmatic factory form is critical to an understanding of the Tremont Nail Factory.

The addition does not contribute to the significance of the Office Building.

Recommended Action

Retaining the Office Building should be a key requirement for site use. The first floor is still suitable for office use and renovation could make additional space useable. Restoring a level of occupancy to the building also increases the presence of a daytime population at the site.

Step 1:

Engage a structural engineer to investigate the second floor framing by removing floor boards and preparing floor load calculations. Consult a wall paper specialist to evaluate the second floor wall papers. Inventory items on the second floor and store significant artifacts. Repair and paint windows and doors. Consider removing siding from historic block and painting/repairing clapboards.

Engineer	\$1,500
Wall Paper consultant	\$1,000
Inventory	\$500-1,500
Repoint chimney	\$3,000
Windows and doors	\$6,000
Wood siding prep and paint	\$3,000
<u>Remove vinyl, prep and paint wood siding, replace deteriorated elements</u>	<u>\$5,500</u>
Total	\$21,500

Step 2:

Repoint interior of stone foundation in selected areas, install new, galvanized posts, and execute various miscellaneous framing repairs.

Miscellaneous Structural	\$13,500
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Step 3:

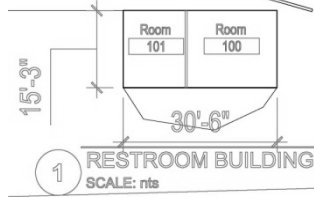
Lease space for commercial or residential use with agreement fashioned to protect second floor spatial arrangement and historic doors and windows. Since much of the infrastructure is in place this is an upgrade activity and priced according to the Low Cost Rehabilitation schedule.

Low Cost Rehabilitation	\$450,000
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Also consider adding a second floor to the addition to increase flexibility of reuse. This could be as much as 1,500 additional square feet.

Construct second floor at \$150/sq. ft.	\$225,000
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RESTROOM BUILDING (c. 1953)



General Description

The Restroom Building is a 1-story, gable-roofed building built around 1953. Until the advent of the steel building this was the only restroom for the factory buildings. The plan is rectangular, measuring about 30 x 15 feet. The interior is divided into men's and women's facilities. Both are entered from the exterior. With the exception of the Steel Building and Office Building the Restroom Building is the closest any of the factory buildings come to meeting current building codes.

The interior is divided into two finished rooms.



Exterior

Roof

The three tab asphalt shingle is in *fair* condition. The shingles are weathered. Open rafters and sheathing are visible at the eaves. A modest overhang is provided at both rake ends by exposed outriggers at the gable end walls.

Flashing

There is lead chimney flashing in *fair* condition. Plumbing vent stacks are metal and rusted and in *worn* condition.

Gutters and Downspouts

There are no gutters or downspouts. Direct roof run-off either saturates the grass on the west side of the building or runs off on the surrounding paving.

Walls

The single-story exterior walls are weathered white cedar shingles in *worn* condition. On the west side the shingles extend all the way to grade. The slope of the site gives adequate spacing at the southeast corner.

Openings

There are 12 window openings. The windows are six over six in *fair* condition and require painting and glazing. There are two swing doors, one each in the north and south walls. The doors are in *fair to worn* condition and require painting and repair at the thresholds.

Trim

All trim on the building is wood and requires painting. In general the trim is in *fair* condition with several spans of wood that should be replaced. Window and door head casings have no flashing.

Foundation

The building sits on a concrete slab on grade foundation.

Interior

Room 100

The men's restroom occupies about two thirds of the building and has a center rank of lavatories and both urinals and toilets.

Framing

Likely 2x4 wall construction and 2x6 roof rafters.

Insulation

No visible insulation. It is assumed that there is some level of insulation to protect the plumbing from winter freezing.

Openings

See exterior comments for openings condition. Interior trim is simple flat board.

Finishes

Interior walls are varnished plywood. The ceiling is pressed board with strapping. The floor is bare concrete. Finishes are in *fair to good* condition.

Room 101

The women's restroom occupies about one third of the building and has a center rank of lavatories and toilets.

Framing

Likely 2x4 wall construction and 2x6 roof rafters.

Insulation

No visible insulation. It is assumed that there is some level of insulation to protect the plumbing from winter freezing.

Openings

See exterior comments for openings condition. Interior trim is simple flat board.

Finishes

Interior walls are varnished plywood. The ceiling is pressed board with strapping. The floor is wood board. Finishes are in *fair* to *good* condition.

Overall

Mechanical, Electrical and Plumbing

- Plumbing
 - Plumbing fixtures are not water saving – 4 urinals and 4 men’s toilets and women’s toilets.
 - Facilities are not handicap accessible.
- Heating and cooling
 - Gas-fired blower in attic appears functional but out of date.
 - Side exhaust fans appear functional but out of date.
 - No cooling.
- Electrical Systems
 - Dated, but code compliant.
- Detection Systems
 - Smoke detectors provide adequate coverage.
 - A 12-zone security system alarm panel is located in the building. This appears to be a site security system, but it is unclear where the zones are.
- Suppression Systems
 - No Sprinklers

Structural

The structure is in *fair* condition. The roof framing needs to be tied to the wall framing. The walls may not be secured to the foundation.

Restroom: Character Defining Features

Not Applicable

Significance – May Be Retained or Removed

The restroom is a late but necessary addition to the factory site. The privy demolished by vandals in 2004 may have been its direct predecessor. As an individual structure it is as undistinguished as most of the other factory buildings. It does add to the density of the factory site and could be useful as a restroom for site related activities.

Recommended Action

The Restroom Building is the only publicly available restroom on the site. There is opportunity to use it in conjunction with increasing site visibility.

Step 1:

Repaint exterior trim, repair windows and doors. Make envelope weather tight to keep building in present condition or better. Maintain plumbing in working condition. Confirm operation of security system.

New vent stacks at roof	\$500
Window Repair and paint (12)	\$3,000

Door repair and paint (2)	\$1,000
Trim repair	\$500
Wood prep and paint	\$2,500
<u>Attach rafters and studs to major framing as required</u>	<u>\$4,500</u>
Total	\$12,000

Step 2:

Make building accessible. Rehabilitate plumbing to support site functions.

Low Cost Rehabilitation \$150,000

At any step:

Consider gutter and downspout installation and coordination with site water management to control roof run-off and impact on the river, wet lands and paved area.

Building Rehabilitation Guidelines

As buildings on the site are returned to active use there must be a set of guidelines that provides direction to the decision makers and their designers when they need to make changes to the existing buildings. Simply put, adaptation of existing buildings should take note of the simple material vocabulary of the factory buildings.

The following criteria should be reviewed against proposed modifications to the extant buildings on the site with the exception of the Office Building. Variation from these standards may be allowed if the intent can be shown to be compatible with the historic setting. Ideally, any alterations should be reversible. These recommendations should be paired with the Secretary of the Interior's *Standards for the Treatment of Historic Properties, Rehabilitation*.

The significance of the building is an important consideration when modifications are planned. Buildings should have the guidelines applied in levels commensurate with their individual significance and with the building context within the larger site. For example, the Restroom Building is a relatively recent addition to the site (circa 1953) and is not an individually significant building. However, an alteration to the Restroom Building that includes a glass bay would be inappropriate to the context of the factory site, if not to the building as an individual structure. Finally, additions to existing buildings should follow the criteria for rehabilitation and new construction.

Documentation

Prior to any alteration work, the affected area of a building should be photographed with at least a full building elevation, two oblique view showing the affected area and the surrounding factory complex context, and details of any fenestration or materials that are being changed. The images should become part of the record of site history.

Guidelines for Exterior Work (except for Office Building)

Roof

Roof material should match the existing three tab asphalt shingles. Decorative asphalt shingles should be avoided since there is not an historic precedent. Returning to wood shingles is appropriate, since that is a documented material. Further historic research may reveal other roofing materials, corrugated iron for example, and when such evidence is found, the material should be considered appropriate.

Flashing

Metal flashing should be either unpainted aluminum, galvanized material, lead-coated copper or sheet lead.

Gutters and Downspouts

Few buildings have gutters or downspouts. If required for roof run-off, control white or oxidized red coloring would be appropriate. Half-round profiles for gutters are more period appropriate as are round downspouts. However, a K-profile gutter and square downspout would be functional as long as they are sized appropriately to the roof.

Walls

Repairs to walls, enclosure of openings, and patching at new openings should be wood shingle or wood board siding. Shingles should be left to weather and vertical siding should be painted or stained red to match extant trim.

Openings

New openings should not disrupt the existing symmetry of facades. If windows are paired or stacked one above the other, that symmetry should be preserved. Maintain a consistent height of openings. For windows, retain a consistent sill height. Doors are more random through the site. Barn-type sliding doors at new openings are most appropriate. These could conceal swing type doors which are presently very limited on the site and proliferation of which would reduce the sense of the buildings serving a factory function.

Closing openings is not desirable, but if required for a particular reuse the closure should be made reversible. This would include preserving the opening framing and documenting the location of the window with a sketch and photographs.

Trim

Trim at alterations should match that on the existing building. Allowance should be made for scaling elements reflective of the massing of the alteration.

Foundation

Where foundations are exposed they are concrete or massive stonework. The stonework only appears where it is serving a second, water-related function, as at the retaining/dam wall in the Tremont Nail Factory Building and the bulkhead along the water side of the Freight Building. Most alterations involving foundation work need no special foundation. Concrete is acceptable.

Interior

Framing

Most all factory buildings have exposed interior framing. Rehabilitation should acknowledge the heavy timber structures. Beams and posts should be exposed or integrated creatively into space layout so their presence is evident.

Insulation

Insulation was not a priority in the factory buildings. Installation of insulation will change the interior appearance of the buildings. Ideally any insulation installation would be reversible.

Openings

Casework is effectively non-existent at building interiors. There are many period appropriate moldings, but simple board trim most effectively conveys the factory aesthetic.

Finishes

Finishes are effectively non-existent beyond concrete floors. The most prevalent historic finish is beadboard face nailed to studs. Interior alterations should include this material in selected public spaces as a nod to the historic. Most finishes can be removed at a later date so the criteria should be that the work is reversible. Note that painting posts and beams is NOT easily reversible. Sandblasting wood to remove paint is not an appropriate treatment.

Guidelines for Exterior Work Office Building (Original portion)

Roof

Roof material should match the existing architectural shingles. Returning to wood shingles would also be appropriate. Further physical research may reveal other roofing materials such as slate, but given the size of the roof framing it seems unlikely.

Flashing

Metal flashing should be copper, both for historic appropriateness and longevity.

Gutters and Downspouts

The current aluminum gutters are a common K-type profile. New gutters should at minimum match the existing. Since the office originally would have had wood gutters with a clear ogee profile, restoration to wood gutters would be historically appropriate. Round downspouts would be appropriate – these could be copper or galvanized painted to match trim.

Walls

Repairs to walls, enclosure of openings, and patching at new openings should be wood clapboards with exposure and profile matching the existing. Note it is important to confirm that the nosing profile matches the existing and the thickness of the butt is the same as the old. Confirm the historic paint color with a paint color study of the exterior. When installing new clapboards match the coursing of historic siding. Check to confirm that joints are butt or scarfs and replicate on replacement siding.

Openings

New openings should be avoided on the façade and limited on the exposed sides of the original building. If added they should not disrupt the existing symmetry fenestration on the sides. Maintain a consistent height of openings. For windows, retain a consistent sill height. New doors should be subordinate to the main doors on the façade. Six panel, wood, stile and rail doors are appropriate.

Closing openings is not desirable, but if required for a particular reuse the closure should be made reversible. This would include preserving the opening framing and documenting the location of the window with a sketch and photographs.

Trim

Trim at alterations should match that on the existing building. Allowance should be made for scaling elements reflective of the massing of the alteration.

Foundation

The granite foundation should be preserved and replicated where infill occurs or additions are made. The granite should be applied as a veneer to new foundation sections. Veneer should match the color, grain and coursing of the existing foundation.

Interior

Framing

Corner posts and beams are visible, but cased in painted wood. This shows the heavy timber framing of the original building. New framing should be conventional, so in new construction the cased beams and columns are unnecessary. Note that where they exist in the original building they are historic and

structurally necessary. They should not be cut or penetrated without review by a licensed Architect or Structural engineer. Casing should not be covered with new finishes.

Insulation

No wall penetrations were made to look for insulation. It is assumed to be absent or substandard. Insulation should be installed from the exterior to preserve interior finishes and historic fabric.

Openings

Second floor casework, windows and doors appear to be original and should be preserved. If they must be moved to accommodate new functions they should be salvaged for reuse. First floor window openings have newer finishes, but historic elements such as pocket shutters may still be extant. Study should be made behind the finishes to determine extant of historic material. These windows may be restored, but should not be further altered.

Finishes

Interior walls are finished with plaster on lath with concealing paneling on the first floor and deteriorated wall paper on the second floor. The paper should be sampled and sections preserved for the historic record. The first floor walls are concealed behind paneling.

The first floor is carpeted, the second floor is plank. Wood floors with a painted finish were likely the original treatment. There may have been carpet or grass cloth area covering.

New Construction Guidelines

New Buildings

- Mass and proportion: human scaled and proportional to existing buildings
- Building form: rectangular, gable roofs with similar slopes; shed roofs if appropriate
- Openings
 - Windows: 6 over 6 lite pattern with true divided lites or simulated divided lites with interior and exterior muntins and spacer bars inside the glass.
 - Doors: board and batten or 6-panel as appropriate
- Site orientation: preserve perpendicular relationship between buildings
- Materials
 - Wall cladding: wood shingle or clapboard as appropriate
 - Trim: wood
 - Roof: wood or asphalt shingles (or other material if supported by on-site evidence)

Additions to Existing Buildings

- Mass and proportion: human scaled and proportional to existing buildings
- Building form: rectangular
- Openings: form and scale of existing building
- Materials: wood shingle or clapboard wall cladding, wood trim, wood or asphalt roof shingles
- Design: sympathetic to existing building without replicating original. To preserve the historic integrity of the existing building it is important that the addition be clearly distinguished from the original.

Although the original factory buildings on site should inform and inspire the design of additions and new buildings, new structures should not be slavish reproductions of existing forms. The original buildings must be readily recognized; otherwise, their historic meaning and integrity are compromised.

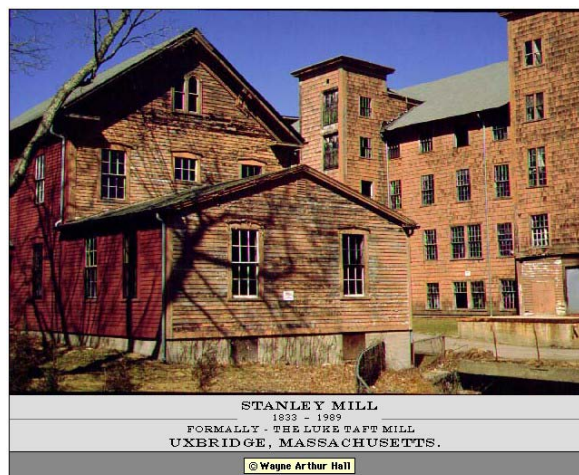
A. ADAPTIVE REUSE AT COMPARABLE SITES

Rehabilitation Scenarios at Comparable Historic Sites

New England has led the nation in historic rehabilitation and boasts many successful mill and factory conversions. The most typical transformations of industrial sites involve multi-story brick mill buildings, which are readily reinvented for housing, light industrial and office applications. The revitalization of one-story wood building complexes like the Tremont Nail Factory is more challenging and requires a deep understanding of the site infrastructure and its constraints and an added measure of imagination. The case histories that follow provide examples of how other New England and Middle Atlantic communities have found new life for their historic industrial sites, all of which share features with the Tremont Nail Factory complex. Not every rehabilitation story has had a happy ending, however, and there are lessons to be learned.

Central/Stanley Woolen Mill, Uxbridge, Massachusetts

The Central/Stanley Woolen Mill, first organized in 1833 on the Blackstone River, supplied cloth to customers as diverse as the Union Army and designer Pierre Cardin. The looms fell silent in 1990 and the abandoned five-story wood factory building, built in 1852, deteriorated over the next two decades. Two sections of roof caved in, timbers rotted, paint flaked off, ancillary buildings including the water tower collapsed, and vandals scavenged everything of value. The picture was a bleak one of neglect and blight.



In 1998 the town's industrial development commission approached a Boston developer whose interest was piqued by the factory's rehabilitation potential. He purchased the property in 2004 after a feasibility study was performed to assess the structural and environment issues associated with the site. Stabilization of the structure, removal of hazardous waste, and installation of a sprinkler system were undertaken immediately at a cost of more than \$1.8 million. Work slated to begin in spring 2009 includes new heating, air conditioning, electrical and plumbing systems and a completed first floor lobby. Tenants for the 93,000 square foot space will be sought mid-year.

The developer plans to attract "tourist oriented retail" such as specialty shops and restaurants. The building will include office space, a gymnasium/fitness center and a theater, and will feature "green" geothermal heating and cooling systems. The building is currently occupied by an antiques dealer and three restoration carpenters working on building repairs. Funding for the rebirth of the Central/Stanley Woolen Mill has come from several sources – the developer, the town of Uxbridge, the Blackstone River Valley Heritage Corridor, and state and federal historic rehabilitation tax credits.

Old Schwamb Mill, Arlington, Massachusetts

Hand-turned oval picture frames have been produced at the Old Schwamb Mill in Arlington, MA since the Civil War, when the popularity of portrait frames rose with the increasing accessibility of photography. The mill became the leading maker of hand-turned oval and circular portrait and mirror frames in the nation and was the last such maker when the family business closed in 1969. Alarmed that the mill was to be razed by its prospective new owner, local preservationists formed the Schwamb Mill Preservation Trust and purchased the three red-stained wood buildings on the bank of Mill Brook.

When the mill complex was acquired by the Trust in 1970, the most pressing need was to repair the weather envelope – roofs, windows, siding and brick foundations. Roof replacement was followed by major structural repairs as funds became available. Other urgent needs were eventually addressed, including a new boiler, utility service, fire and security systems, and oil tank removal. Repairs and maintenance to windows, siding and masonry have been undertaken with the assistance of a grant from the Massachusetts Preservation Projects Fund.



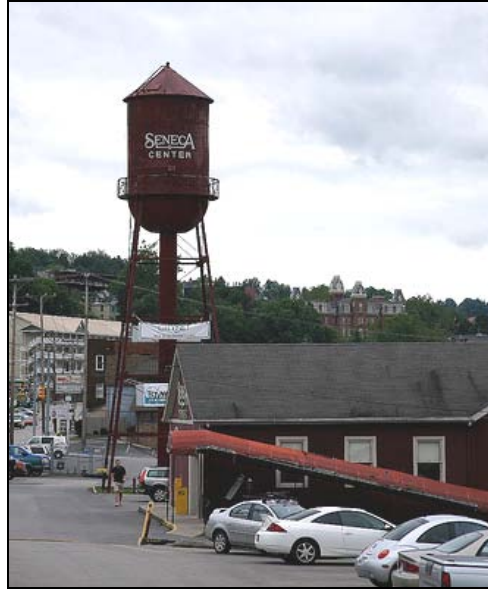
The first tenants of the saved mill were artisans, later replaced by for-profit tenants when the craft renaissance faded. Partnerships with the North Bennett Street School, the Massachusetts Department of Education, and public television were initiated to provide income to underwrite operating expenses. Today the mill is operated as a mill-museum by an all-volunteer nonprofit charitable educational trust and is funded by the Friends of the Old Schwamb Mill with support from federal, state, and foundation grants. Upstairs spaces are rented to preservation architects and engineers; the Barn is used as a showroom for the Shaker Workshops catalogue business.

A paragraph from the mill's website could almost describe a visitor's experience at a future Tremont Nail Factory:

"Like other industrial landmarks of its broad, general type (post-and beam framed mill building, formerly water powered, complete with manufactory era machines) the Old Schwamb Mill is one of those buildings which "work much magic" upon visitors who enter-- because the interior is a rich symphony of period industrial rooms, finishes, and mechanics -- concealed within an architectural "shell" which is quiet, plain and understated. The main building stands as a time capsule with remarkable contents, and functions like a Victorian music box by enchanting the visitor with mechanics and sounds once the outer "box" is opened."

Seneca Glass Company, Morgantown, West Virginia

The Seneca Glass Company, built in 1896, was one of many glass works established along the Monongahela River. Its owners were enticed by the proximity of the river, the railroad, and natural gas and oil resources, and by the promise of “free land, cheap gas, and a subsidy” from a local investment firm. For almost a century, the firm produced fine cut lead crystal in more than 1,000 patterns for American stores and hotels and international steamship lines. When it closed its doors in 1983 and was purchased by a floor covering company, much of the company’s inventory and equipment was sold.



Although the brick building with its striking conical stack saw many additions over time, much of the original structure remains. The massive blowing room, 80 feet by 80 feet, still houses the brick stack, furnace and clay ovens. The late nineteenth century wood and metal roof trusses are exposed, creating a dramatic and complex pattern overhead.

The former Seneca Glass Company building, now known as Seneca Center, houses a complex of upscale specialty stores and restaurants, a visitor’s center and the Riverfront Museum. Interpretive stations and displays throughout the factory building are a record of the building’s glassmaking heritage.

Slade Spice Mill, Revere, Massachusetts

For more than two centuries, the rise and fall of the tides powered a succession of mills on Mill Creek in Revere, producing flour, snuff and spices. The last mill on the site, the three-story wood frame Slade Spice Mill, built in 1885, ground spices brought by clipper ship from Asia. The mill remained dormant for almost 30 years after operations ceased in 1976. New owners attempted to convert it to a restaurant, but were hampered by parking issues and opposition from local governance boards. They operated the mill building as an informal museum, welcoming visitors by appointment.

In 2001 the building was purchased by a software entrepreneur and part-time historic property developer who envisioned a 15-unit lodging/housing facility and museum. He obtained approval from the Massachusetts Historical Commission for a rehabilitation plan and began restoring the roof and windows and installing new mechanical systems. Completed in 2005, the housing component of the project was designed for extended stays and is marketed to visitors with a penchant for history

and architecture. The owner operates the first floor of the mill as non-profit museum open to the public by appointment.

Before



Construction Photo



Slade's Spice Mill, Revere, MA. Undated photographs from Thomas McGrath Architects website, TMcGarchitects.com. Robert Brooker, project owner.

Wheeling Artisan Center, Wheeling, West Virginia

With guidance and financial support from the Wheeling National Heritage Area Corporation (WNHAC), a large brick industrial building in downtown Wheeling was renovated for an artisan center and community space. The former H.K. List Building opened in 1995 with a three-story atrium; work and display spaces for regional artists, craftspersons, and food purveyors; permanent gallery space; a restaurant; and a 7,500 square foot open exhibition/event space. WNHAC views the successful artisan center as a key component of its own sustainability and a keystone in Wheeling's downtown revitalization.



Frye's Measure Mill, Wilson, New Hampshire

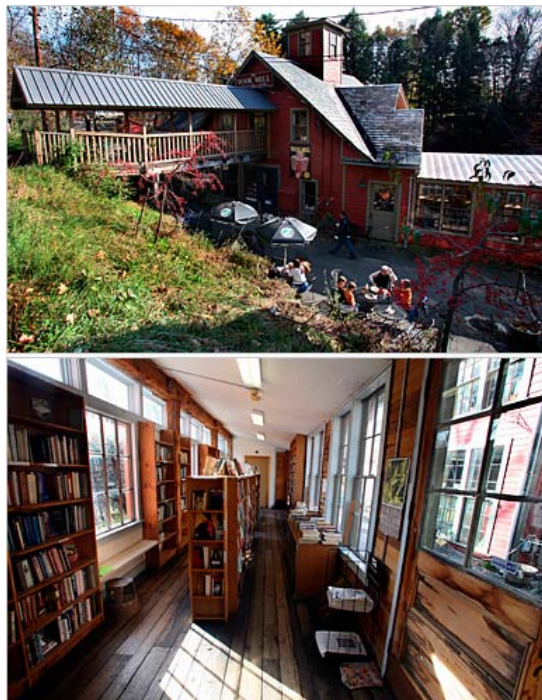
Frye's Measure Mill in the picturesque hamlet of Wilson, New Hampshire has been in continuous water-powered operation since 1858, producing woodenware and dry measure boxes. It welcomes visitors to tour its workshops and sells its elegant Shaker-style boxes and a variety of other wares through an upscale gift shop and online store. The operation has struggled recently and the eight-acre

property, containing the mill and its equipment, dam, ponds and outbuildings, has been put up for sale. Through the efforts of its current owner, it was listed on the New Hampshire Preservation Alliance's "Seven to Save" endangered list in 2008.



Montague Bookmill, Montague, Massachusetts

The bookstore complex on the banks of the Sawmill River started life in 1832 as a gristmill and provided flour to the community for almost a century. In the early 1930s the mill building and wooden crib dam, both in poor condition, were purchased by Martin Machine Company and reconfigured for the manufacture of hydraulic marking machines for stamping wood, metal and other materials. Flooding in the late 1980s breached the dam, which was never successfully repaired. Martin Machine moved their operation in 1987 and sold the mill to private investors who rehabilitated the wood building for a used bookstore and created a retail/entertainment complex that now houses an antique shop, art studio, restaurant, café, movie theater, and outdoor performance venue. The Bookmill's commercial success despite its isolated location is expressed in its tagline, "Books you don't need in a place you can't find."



These rehabilitative enterprises illustrate a pattern of success. All the viable examples share features in common – community commitment, a core group of dedicated stakeholders, a creative vision, significant private investment, and reuse that is compatible with existing market demand. The stewards of the Tremont Nail Factory site have the requisite commitment and vision and are now developing the tools to make the site an historic rehabilitation success story.

B. COMPATIBLE REUSE OPTIONS & CONCEPTUAL SITE PLANS

Community Needs, Expectations and Opportunities

Preservation and rehabilitation of the Tremont Nail Factory site has been a priority for Wareham's historic community for more than a decade. Propelled by an added sense of urgency after the sale and shutdown of the factory in 2005-2006, proponents of the site engaged the community through a process of awareness and education and enlisted its support for the town's purchase of the nail works site with Community Preservation Act funds in 2006. Wareham has taken a wise and cautious path to renewal of the property by taking an important first step – performance of a conditions and feasibility study to identify practical and sustainable rehabilitation options. Any solution for the Tremont Nail Factory site must also be a solution for Wareham, one that enhances the quality of life for its citizens and contributes to the community's social and economic vitality.

The town's plan for Wareham Village as expressed in the 2008 *Wareham Village Strategy: A Plan for Improvement* envisions a "brightened, lively district composed of small and renovated buildings along the tree-lined, landscaped Main Street." Realization of this vision will require a three-pronged approach that includes 1) improved access and circulation, 2) improved public realm, and 3) "incentivized" redevelopment. The factory site represents a prominent historic landmark anchoring the north end of the downtown area. Through its fortuitous proximity to Wareham Village and the Centre Park Historic District, a rehabilitated Tremont Nail Factory site could provide a "significant boost" to the revitalization of the village center by offering connections to the waterfront, recreational opportunities, public gathering spaces, and conserved public land. With the cooperation of local and state authorities and the application of additional capacity and planning resources, the nail factory site could be an attractive location for redevelopment.

Wareham's unmet market needs, as reported in the strategy plan and the village market analysis by The Cecil Group/FXM Associates (2007), represent opportunities for redevelopment that could conceivably include reuse of the Tremont Nail Factory site. They include a steady demand for residential property, both condominiums and rental apartments, at or near the village center. The town is short 300 affordable housing units, adding to the base need for residential development. The report identified retail opportunities for electronic, health and personal care, book and music, jewelry, and specialized apparel stores. There is moderate but unfilled demand for small professional and business offices, including space for physician and related health care services associated with Tobey Hospital. These opportunities merit consideration when vetting reuse alternatives for the Tremont Nail Factory site in the next phase of the process, which should include an in-depth economic study.

Like other communities nationwide, Wareham will likely adopt Smart Growth strategies as it plans for its future. These strategies that support the town's planning goals are synergistic with renewal at the Tremont Nail Factory site. Smart Growth seeks to avoid "sprawl" through the revitalization of center cities and older suburbs. It is town-centered, transit and pedestrian oriented, focuses on existing vs. new infrastructure, and features a high density mix of housing, commercial and retail uses. The preservation of historic architecture and existing buildings is a core tenet of Smart Growth philosophy; historic resources that have been given new life draw the community back to the assets that attracted them there in the first place.

Local and regional initiatives that have obvious potential positive impact on development of the nail factory include the proposed commuter rail extension, the bikeway, the river walk, and the National Cranberry Heritage Area. Rehabilitation of the Tremont Nail Factory site will proceed independently of these plans, but their eventual implementation will provide obvious benefits to a revitalized nail factory complex.

Basis and Rationale for Adaptive Reuse Options

Development of the adaptive reuse concepts for the Tremont Nail Factory site proposed in this report was informed by the results of the conditions assessment and guided by the following precepts:

- Preserve the unique historic character of the buildings and the site
- Devise solutions compatible with the form and material fabric of the historic buildings
- Address environmental concerns with the community's conservation objectives in mind
 - Preserve open space and restore natural setting
 - Maintain required public access to water
 - Partner on site water management
- Consider options that further Wareham's town planning goals
- Employ Smart Growth strategies consistent with town planning goals
- Incorporate learnings from reuse examples at comparable sites

In all three adaptive reuse concepts that follow, the Factory Building is treated with minimal physical intervention. It is the most architecturally and historically significant structure on the site, and the one that most eloquently tells the story of nail manufacturing in Wareham. The character of the Factory Building is defined by its soaring open vault, massive exposed framing, rough interior finishing, bank-built stone foundation, blacksmith's forge and wealth of machinery – all elements that must remain visible to make the building's past a tangible experience for visitors. Minimal subdivision of space and installation of a perimeter mezzanine that permits close viewing of the framing and machinery would preserve these essential elements.

With minimal intervention, the Factory Building could be used seasonally to host a craft marketplace, farmer's market, artisan workshops, or art galleries. The challenge of water infiltration management and a short renovation lead time argue for light seasonal reuse, at least initially. The later addition of heating and cooling systems, plainly visible to retain the factory aesthetic, could support year round use of the space for a theater, museum, restaurant or combination thereof.

Two of the reuse options incorporate housing, a key component of a Smart Growth mixed use development. The proposed new multi-unit housing structures could be designed to reflect the simple, tenement-style dwellings that once graced the site. These units would help address Wareham's demonstrated need for elderly and affordable housing and introduce a permanent population to the site. A third scenario focuses on new office space, also in short supply in Wareham. The historic Office Building would retain its traditional use in one of the three reuse concepts.

The other historic buildings (Packaging Building, Pickling Building, Freight Building and Freight Shed) are repurposed in the three scenarios for recreation, retail, and recreation-related retail. Proximity to the kayak launch and open space at the south end of the site, and to the eventual connection with the proposed bikeway and river walk, make these logical transformations.

Reuse Option One

This option retains all the existing buildings and adds two new office buildings on the west side of the campus. The Steel Building sees continued use for boat rentals and/or marine-related retail. The Factory Building is used as a craft marketplace or in another light application as described earlier. The Pickling Building, Packaging Building, Freight Building and Freight Shed are converted to retail, recreation, and recreation-related retail. Reuse Option One as illustrated is 70 parking spaces short of the number required by zoning. If the Packaging Building is used for storage and the Pickling Building is stabilized, but not used the parking deficit is only 48.

Reuse Option Two

In this scenario, the Steel Building has been removed and replaced with multi-unit housing. There are three new multi-unit buildings on the west side of the site. The Office Building is rehabilitated for a combination of office use and housing. The other buildings on the site are employed as in Option One. Reuse Option Two as illustrated is 32 parking spaces short of the number required.

Reuse Option Three

The Pickling and Packaging Buildings have been removed and converted to parking in this scenario. Otherwise, this option is identical to Option Two. Reuse Option Three is 15 parking spaces short of the number required.

With minimal intervention, the Factory Building could be used seasonally to host a craft marketplace, farmer's market, artisan workshops, or art galleries. The challenge of water infiltration management and a short renovation lead time argue for light seasonal use initially.

Freight Building: Recreation-related retail/water craft rentals, lessons. Modest intervention to support seasonal business.

Boat Access: Improve visibility and signage to boat ramp to foster knowledge and use.

Freight Shed: Storage for site support materials and equipment.

107 Parking Spaces: New striping, patch paving, improve drainage with limited grading and replanted vegetative margins for parking lot. Number is 70 less than required by zoning for the uses proposed on this plan.

Wetland environment volunteer

Continue leasing steel building for boat related retail.

New office buildings 1 or 2 stories evocative of historic office building and period construction.

Office: Lease for business use.

Packaging Building: Retail related to history or water uses. Alternatively use as storage with limited renovation.

Picking Building: Retail or stabilize for future renovation.

WANKINCO RIVER

Freight Building: Recreation-related retail/water craft rentals, lessons. Modest intervention to support seasonal business.

Pickling Building: Retail or stabilize for future renovation.

19 spaces

Building: Retail related to water uses. Alternatively as storage with limited renovation.

Office: Lease for business use.

107 Parking Spaces: New striping, patch paving, improve drainage with limited grading and replanted vegetative margins for parking lot. Number is 70 less than required by zoning for the uses proposed on this plan.

Wetland
environ-
volunte

Continue leasing steel building for boat related retail.

- New office buildings 1 or 2 stories evocative of historic office building a period construction.

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Project Number: 0020.00


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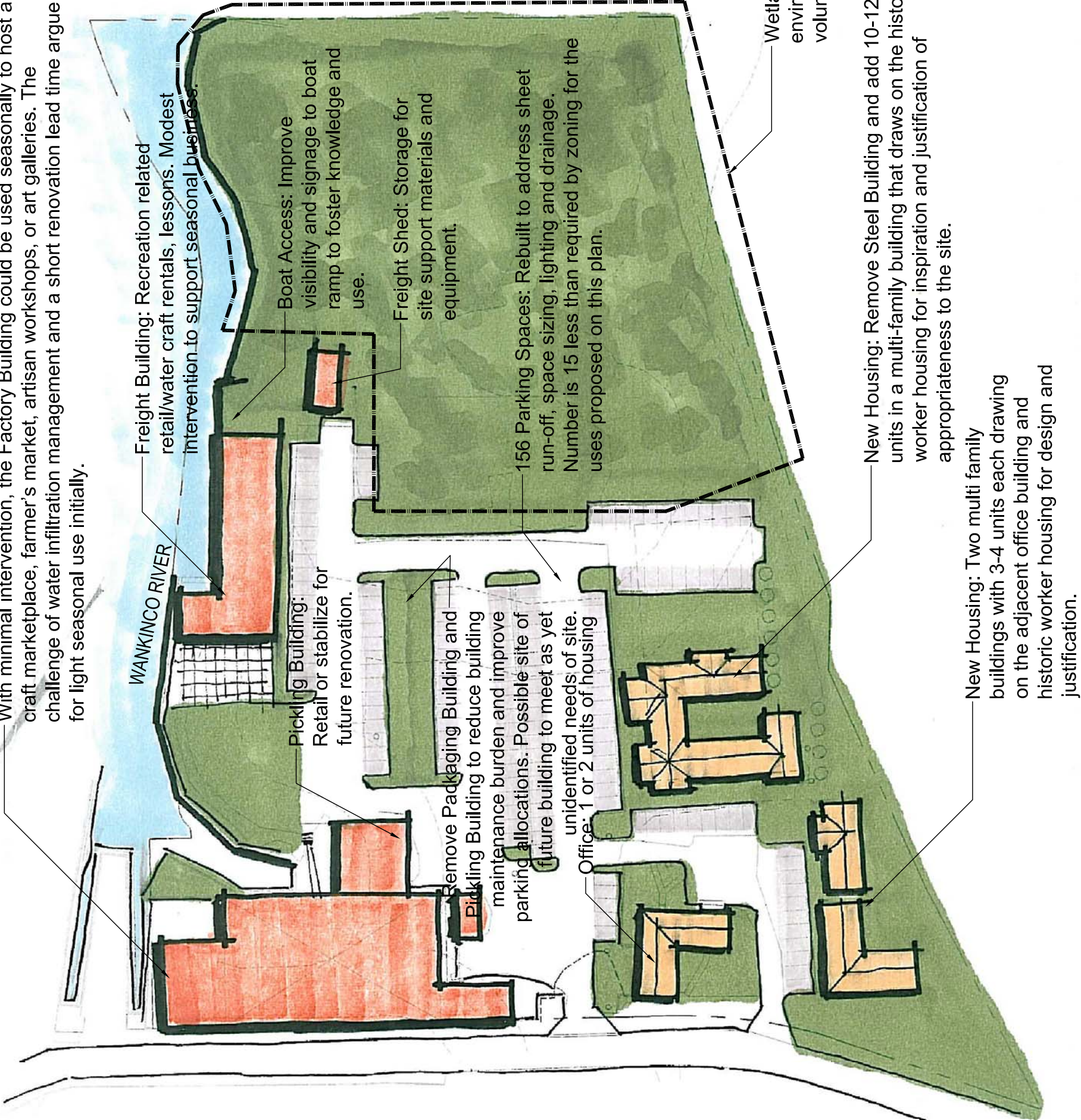
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With minimal intervention, the Factory Building could be used seasonally to host a craft marketplace, farmer's market, artisan workshops, or art galleries. The challenge of water infiltration management and a short renovation lead time argue for light seasonal use initially.

- RETAIL/RESTAURANT
- OFFICE / BUSINESS
- HOUSING
- OPEN SPACE / NATURAL
- SITE CIRCULATION / PARKING



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SITE DEVELOPMENT SCENARIOS
HOUSING WITH OUT PICKLING,
PACKAGING OR STEEL BUILDINGS

ISSUE:

REVISIONS:

Date: June 4, 2009
Scale: not to scale
Drawn by: PBG
Checked by:
Project Number: 0820.00

SD-3

C. SUMMARY COST ESTIMATES

Summary Cost Estimates

The estimates on the following pages are for construction costs only. They are based on market cost data and experience with similar historic rehabilitation projects.

Rehabilitation estimates were calculated using square foot costs of \$150, \$250, and \$350 for low, medium, and high cost treatments, respectively. The three levels of rehabilitation are described in Part Two of this report. The site rehabilitation estimate does not include remediation of hazardous materials, if found.

Tremont Nail Factory
Summary Cost Estimates - Stabilization

Building	Activity	Cost
Nail Factory Building	Stabilize framing & envelope; rebuild chimney	218,100
Pickling Building	Stabilize framing & envelope	15,650
Packaging Building	Stabilize envelope & regrade	25,940
Freight Building	Stabilize envelope & regrade	229,590
Freight Shed	Stabilize envelope	17,500
Steel Building	Minor repairs	3,500
Office Building	Engineering investigation, evaluations & envelope repairs	21,500
	Misc. structural repairs	13,500
Restroom Building	Envelope & misc. repairs	12,000
	TOTAL	557,280

Tremont Nail Factory
Summary Cost Estimates - Rehabilitation

Building	Activity	Cost
Site	Rehabilitation of paved areas	1,510,000
Nail Factory Building	Rehabilitation - medium cost	4,287,000
Pickling Building	Disassemble	14,000
	Reconstruct	217,500
Packaging Building	Rehabilitation - medium cost	800,000
Freight Building	Rehabilitation - medium cost	1,600,000
Freight Shed	Rehabilitate for seasonal storage	15,000
Steel Building	Remove & clean site	142,500
Office Building	Rehabilitation - low cost	450,000
	Construct second floor	225,000
Restroom Building	Rehabilitation - low cost	150,000
	TOTAL	9,411,000

D. IMPLEMENTATION PLAN

Implementation Plan

The goal of this Conditions Assessment and Feasibility Study is to outline clear and achievable aims and a path to achieve them. That path is the Implementation Plan. The plan is presented as a task list that is divided into three categories as follows.

Immediate steps are tasks that should begin with receipt of this report. Some are open ended and are suggested as a means to increase understanding and community interest in the site. Others are high priority, time sensitive tasks that should be completed to move the reuse of the site forward. **Next steps** are equally important activities, but can be initiated over the next 6 – 12 months.

<u>Category</u>	<u>Task</u>	<u>Description</u>	<u>Priority</u>
Immediate Steps			
	Building stabilization	Repair building envelopes. Prevent further water and weather penetration of the buildings to prolong life and keep intact until final reuse is implemented.	High
	Community involvement	Continue and expand programs in schools, offer site tours, expand membership in friends groups, partner with other community non-profits to support efforts in mutually beneficial sharing of resources.	High
	Preservation restriction	Finalize the language of the preservation restriction to satisfy CPA requirement and codify protection of critical site resources.	High
	Town infrastructure improvements	Document with photos and copies of construction drawings scheduled Town improvements to infrastructure that will be directed through the site.	High
	Dam issues	Hold substantive dialogue between all stakeholders in dam maintenance and repair: A.D. Makepeace, Town of Wareham, Commonwealth of Massachusetts and others.	High
	Site lighting	Expand security lighting to cover more area. Use lights on motion sensors to limit shining time and light pollution.	Medium
	Site interpretation	Install informational signage that communicates the site name, ownership, and building status.	Medium
Next Steps			
	Structural investigations	Conduct further investigation of structural condition of buildings prior to re-use.	High
	<i>Office Building</i>	Investigate roof framing and second floor framing and basement posts in old section prior to leasing building.	High

	<i>Nail Factory Building</i>	Investigate stone retaining wall at north wall; study bridges and catwalks for stabilization or removal; analyze structure re. stability and code requirements.	High
	Wetlands restrictions	Determine redevelopment constraints and opportunities presented by wetlands and river conservation restrictions.	High
	Economic feasibility study	Perform economic feasibility study to determine net benefit to the community of various rehabilitative schemes	High
	Site interpretation	Create interpretive signage program to help visitors under the history and significance of the property.	Medium
	Inventory & assessment of artifacts	Inventory and properly store industrial and architectural artifacts (nail making tools and equipment, artifacts in Office Building, etc.); assess historic wallpapers in Office Building.	Medium
	Museum committee	Form a committee of stakeholders to explore ways to interpret the site; consider non-traditional programs such as iPod walking tours and travelling exhibits that reach a broad audience.	Medium
	Comparable site visits	Visit comparable historic industrial sites that have been rehabilitated or are undergoing redevelopment.	Medium
	Grant/funding research	Research and identify public and private funding sources; consider enlisting a professional grantfinder/grantwriter.	Medium
Ongoing Activities	On-site power generation research	Explore water power generation at other historic mill sites.	Low
	Preservation protection	Begin process (Preliminary Study) to incorporate nail factory buildings in existing Local Historic District; enforce preservation restriction.	
	Building maintenance	Maintain stabilized buildings; use Cyclical Maintenance Plan (included in this report) to guide activities.	
	Building restoration	Restore buildings as funding allows.	
	Building rehabilitation	Rehabilitate buildings as funding allows.	
	Seasonal tenants	Solicit tenants for seasonal use of buildings.	
	Site events	Conduct outside events (fairs, festivals, concerts,	

performances) that draw community to site.

Leasing tenants	Solicit tenants for long-term use of buildings.
Building additions	Add to buildings as funding allows.
New construction	Construct new buildings as funding allows.

A. CYCLICAL MAINTENANCE PLAN

Introduction

This section of the conditions assessment and feasibility study provides a plan for maintenance at the Tremont Nail Factory Site. This section can be used as a tool to anticipate the calendar for replacement of materials as they deteriorate or wear out over time. By projecting forward the stewards of the site will be able to plan for anticipated work over the life cycle of buildings at the site.

Maintenance Plan

The following maintenance plan follows an itemization of exterior building elements at the buildings of the Tremont Nail Factory site and describes recommended maintenance procedures and intervals for the work. The plan is presented first in narrative form and then in a chart for quick reference. The buildings are listed in the same order as in the existing conditions section of the report.

These recommended tasks and procedures will not prevent wear and tear on the buildings but will increase the lifespan of materials. By increasing the lifespan of materials, the day when repair or replacement is required can be extended and the cost can be amortized over a longer span of time.

The maintenance plan covers exteriors of the buildings and the sprinkler system where it is present. It is protection of the weather envelope that will preserve these buildings as future uses are determined. As use begins at the interior of the buildings, a maintenance plan could be adopted for interior features as well.

Perhaps the single most important maintenance activity is an annual inspection. The building exterior should be carefully inspected from the ground, preferably by two people and the same people each year, who make notes for record purposes of any signs of deterioration on any portion of the envelope. The concept is to look for changes in conditions that might indicate problems, not offer expert advice on repair methods. When changes are noted, consultation with an architect or engineer may be warranted. A consistent date such as the day when the sprinkler system is scheduled for testing might be a convenient time for the survey. Digital photographs could be taken as a record and stored on a computer or printed out and filed in a maintenance binder to be referenced the following year.

The maintenance plan is presented in chart form, one for each building. The chart itemizes building features by material types and use. Chart columns are explained below.

Building System

The building system is the feature or characteristic that requires a maintenance and/or capital budgeting line item. For example, exterior walls comprise a building system that requires periodic re-siding. Location indicates the primary elevation, if distinct from other elevations – for example the brick wall on the north elevation of the Factory Building only occurs at the blacksmith shop so it is noted separately.

Maintenance

The fourth and fifth columns describe maintenance activities with intervals and anticipated costs for the locations identified. Maintenance activities are largely housekeeping tasks and straightforward pro-active work. The frequency is in years and the maintenance work is considered routine upkeep which might require special attention from church maintenance personnel or an outside contractor. The intervals are suggested as the maximum span of time between maintenance activities. For example, the wood trim of the Packaging Building should be painted every six or seven years to retard deterioration of the wood. Note that fractional yearly frequency means more than once a year.

Capital Budgeting

The next four columns fall under the heading capital budgeting. Capital budgeting attempts to look ahead to replacement costs for the features identified in the first two columns. To arrive at a projected cost the typical lifespan of a feature to the point of replacement is listed. On this chart, the lifespan is projected from the year 2009. The year for replacement is listed to help forecast and coordinate scheduling multiple projects. A replacement cost is provided. This cost is typically derived from costs per square foot of similar work multiplied by the size of the element at the particular building. The numbers under replacement cost are shown as 2009 dollars. If an adjustment for inflation is desired, 5% is a reasonable figure to add in to calculations.

Cash Reserve

The column titled cash reserves indicates the amount that should be set aside each year over the life span of the element to have sufficient funds available to replace the element in a capital project. While it may not be a practice of the Town to budget for future replacement in this way, the information could be helpful in guiding potential not-for-profit affiliated groups in fundraising or strategizing. The cash reserve is one means of preparing for the future by starting to save today.

The remainder of the chart shows the combined annual maintenance and capital reserve expenses for each building system and a comment where clarification might be required.

Summary

Our estimate of annual maintenance cost for the buildings at the site is \$23,150. Note that this figure assumes that all repair and stabilization work described in the Existing Conditions section of the report have already been carried out, otherwise the maintenance figures will be higher as currently deteriorated conditions continue to fail and repairs are required.

The cash reserve number is large, \$71,770 per year, as might be expected with over 50,000 square feet of buildings. There are several strategies for keeping up with the capital improvement budget. The chart presents the most conservative approach, where a value is set aside each year against the anticipated cost of future capital improvements. This does require the set aside funds to earn a return that equals the rate of inflation – presently about 6.5%.

Alternatively, tracking when anticipated replacements are due would allow forecasting for internal capital campaigns, loan strategies or planning for alternate funding for the work. For example, knowing that a new shingle roof installed on the Freight Building today could be expected to last about 30-35 years until about 2044, one could plan fundraising or budgeting well in advance and still be prepared when the work is required.

TREMONT NAIL FACTORY BUILDING

Tremont Nail Factory
Wareham, MA

Conditions Assessment Feasibility Study Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting				Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Appliances	Sprinkler system	100	0.5	25	2034	134575	5,383	5,583	Assumes full system replacement - valves and heads and piping.
Exterior									
Roofing	Asphalt Shingle	250	0.5	35	2044	161490	4,614	5,114	
	Wood Shingle*	250	0.5	35	2044	322980	9,228	9,728	
	Clean gutters/replace gutters (aluminum)	250	0.5	35	2044	3500	100	600	
Walls	Masonry Repointing - Spot repointing/Total repointing	2500	5.0	50	2059	135000	2,700	3,200	
	Wood shingle siding	1000	5.0	25	2034	88000	3,520	3,720	
Chimneys	Repair flashing	500	2.0					250	
	Replace wash			25	2034	2500	100	100	
	Repoint brick			40	2049	27000	675	675	
Wood Trim	Repair and paint	2000	7.0	30	2039	28000	933	1,219	

TREMONT NAIL FACTORY BUILDING

Tremont Nail Factory
Wareham, MA

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (15)	3000	5.0	25	2034	22500	900	1,500
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (3)	600	5.0	25	2034	9000	360	480
Windows	Paint and glaze/ Restore windows (90)	18000	5.0	25	2033	45000	1,800	5,400
Total Maintenance		7256						
Total Cash Reserve		30313						
Total Annual		37569						

PICKLING BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Exterior								
Roofing	Asphalt Shingle	250	0.5	35	2044	12180	348	848
	Wood Shingle*	250	0.5	40	2049	24360	609	1,109
Walls	Wood shingle siding	500	5.0	35	2044	15200	434	534
Wood Trim	Repair and paint	2000	7.0	30	2039	4800	160	446
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (3)	1000	5.0	25	2034	15000	600	800
Windows	Paint and glaze/ Restore windows (13)	2600	5.0	25	2033	6500	260	780
	Total Maintenance	2106						
	Total Cash Reserve	2411						
	Total Annual	4517						

PACKAGING BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting				Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Exterior									
Roofing	Asphalt Shingle	250	0.5	35	2044	26880	768	1,268	
	Wood Shingle*	250	0.5	35	2044	53760	1,536	2,036	
	Clean gutters/replace gutters (aluminum)	100	0.5	35	2044	1200	34	234	
Walls	Wood shingle siding	500	5.0	50	2059	19200	384	484	
Wood Trim	Repair and paint	500	7.0	30	2039	2000	67	138	
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (2)	500	5.0	25	2034	3000	120	220	
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (3)	600	5.0	25	2034	9000	360	480	
Windows	Paint and glaze/ Restore windows (12)	2400	5.0	25	2034	6000	240	720	
Total Maintenance		2071							
Total Cash Reserve		3509							
Total Annual		5580							

FREIGHT BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting				Projected annual cost	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Appliances	Sprinkler system	100	0.5	25	2034	44660	1,786	1,986	Assumes full system replacement - valves and heads and piping.
Exterior									
Roofing	Asphalt Shingle	250	0.5	35	2044	53592	1,531	2,031	
	Wood Shingle*	250	0.5	35	2044	107184	3,062	3,562	
	Clean gutters/replace gutters (aluminum)	100	0.5	35	2044	3000	86	286	
Walls	Wood shingle siding	1000	5.0	25	2034	88000	3,520	3,720	
	Touch-up pointing stone foundation/Repoint entire foundation	1500	5.0	40	2049	44280	1,107	1,407	
Chimneys	Repair Flashing	500	2.0					250	
	Replace wash			25	2034	2500	100	100	
	Repoint brick			40	2049	8100	203	203	
Wood Trim	Repair and paint	1500	7.0	30	2039	8000	267	481	
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (2)	400	5.0	25	2034	3000	120	200	

FREIGHT BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost		
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (7)	1400	5.0	25	2034	21000	1,120	
Windows	Paint and glaze/ Restore windows (21)	4200	5.0	25	2033	10500	1,260	
Total Maintenance		3564						
Total Cash Reserve		13042						
Total Annual		16606						

FREIGHT SHED

	Building System	Maintenance		Capital Budgeting				Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Exterior									
Roofing	Asphalt Shingle	250	0.5	35	2044	6048	173	673	
	Wood Shingle*	250	0.5	40	2049	12096	302	802	
Walls	Wood shingle siding	500	5.0	35	2044	9280	265	365	
Wood Trim	Repair and paint	500	7.0	30	2039	2400	80	151	
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (3)	600	5.0	25	2034	9000	360	480	
Windows	Paint and glaze/ Restore windows (2)	400	5.0	25	2033	1000	40	120	
	Total Maintenance	1371							
	Total Cash Reserve	1220							
	Total Annual	2592							

	Building System	Maintenance		Capital Budgeting				Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Appliances									
	Steel Building Electrical System	100	0.5	35	2034	45000	1,286	1,486	Assumes full system replacement - switches and wiring.
	Plumbing (other than fire protection)	100	0.5	35	2034	4400	126	326	Assumes full system replacement - fixtures and pipes
	Sprinkler system	100	0.5	35	2034	165000	4,714	4,914	Assumes full system replacement - heads and pipes
Exterior Roofing	Membrane roof	250	0.5	35	2044	60000	1,714	2,214	
	Clean gutters/replace gutters (aluminum)	100	0.5	35	2044	4000	114	314	
Swing Doors	Repair/Replace Exterior Doors (2)	200	5.0	25	2034	3000	120	160	
Freight Doors	Repair/Replace Exterior Doors (3)	600	5.0	25	2034	7500	300	420	
Windows	Repair/Replace (3)	150	5.0	25	2033	1500	60	90	
Total Maintenance		1090							
Total Cash Reserve		8434							

STEEL BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Total Annual		9524						

OFFICE BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Appliances								
	Office electrical system	100	0.5	35	2034	38400	1,097	Assumes full system replacement - switches and wiring.
	Office plumbing	100	0.5	35	2034	35200	1,006	Assumes full system replacement - fixtures and pipes
Exterior								
Roofing	Asphalt Shingle	250	0.5	35	2044	21840	624	
	Wood Shingle*	250	0.5	35	2044	43680	1,248	
	Clean gutters/replace gutters (aluminum)	100	0.5	35	2044	2400	69	
Walls	Wood clapboards on old portion	500	5.0	35	2044	19200	549	
	Vinyl siding on addition	500	5.0	20	2029	12000	600	
Chimneys	Repair flashing	500	2.0					
	Replace wash			25	2034	1200	48	
	Repoint brick			40	2049	5400	135	
Wood Trim	Repair and paint	2000	7.0	30	2039	12000	400	
Paint Exterior Siding	Touch up/Total repainting	500	2.0	7	2016	28800	4,114	

OFFICE BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting				Projected annual cost	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (3)	600	5.0	25	2034	4500	180	300	
Freight Doors	Paint and adjust hardware/Restore Exterior Doors (1)	200	5.0	25	2034	3000	120	160	
Windows	Paint and glaze/ Restore windows (12) - Historic in main block	2400	5.0	25	2033	18000	720	1,200	
Windows	maintain/Replace windows addition	2600	5.0	15	2023	6500	433	953	
Total Maintenance		3546							
Total Cash Reserve		11343							
Total Annual		14888							

RESTROOM BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting				Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve		
Appliances									
	Restroom electrical system	100	0.5	35	2034	5400	154	354	Assumes full system replacement - switches and wiring.
	Restroom plumbing	100	0.5	35	2034	6750	193	393	Assumes full system replacement - fixtures and pipes
Exterior									
Roofing	Asphalt Shingle	250	0.5	35	2044	3780	108	608	
	Wood Shingle*	250	0.5	35	2044	7560	216	716	
Walls	Wood shingle siding repair/replace	500	5.0	35	2044	7200	206	306	
Chimneys	Repair flashing	500	2.0					250	
	Replace wash			25	2034	1200	48	48	
	Repoint brick			40	2049	5400	135	135	
Wood Trim	Repair and paint	250	7.0	30	2039	4000	133	169	
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (2)	400	5.0	25	2034	3000	120	200	
Windows	Reglaze and Paint/Total repair (12)	2400	5.0	15	2023	6000	400	880	

RESTROOM BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Maintenance		Capital Budgeting			Projected annual cost Sum of cash reserve and maintenance	Comments
		Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Total Maintenance		2146						
Total Cash Reserve		1497						
Total Annual		3643						

TREMONT NAIL FACTORY BUILDINGS

Tremont Nail Factory
Wareham, MA

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Annual Maintenance Expenditures	Annual Cash Reserve Strategy
Nail Factory Building	\$7,256	\$30,313
Pickling Building	\$2,106	\$2,411
Packaging Building	\$2,071	\$3,509
Freight Building	\$3,564	\$13,042
Freight Shed	\$1,371	\$1,220
Steel Building	\$1,090	\$8,434
Office Building	\$3,546	\$11,343
Restroom Building	\$2,146	\$1,497
Total	\$23,150	\$71,770

A. HISTORIC RESEARCH: PRIMARY SOURCE MATERIALS

Appendices: Selected Primary Sources

1. Dates and uses of Tremont Nail Company/Wareham Center Buildings.
2. Chapter 28, 1827, *Private and Special Statutes of the Commonwealth of Massachusetts, from May 1822, to March 1830*, vol. 6 (Boston, 1837).
3. Chapter 15, 1845, *Acts and Resolves passed by the General Court of Massachusetts, in the years 1843, 1844, 1845* (Boston, 1845).
4. J. Peter Lesley, *The Iron Manufacturer's Guide to the Furnaces, Forges and Rolling Mills of the United States* (NY: John Wiley, 1859)
4. Chapter 327, 1873, *Acts and Resolves Passed by the General Court of Massachusetts in the Year 1872, '73* (Boston, 1873)
5. Dunlap, ed., *Wiley's American Iron Trade Manual* (NY: John Wiley & Son, 1874).
6. *Public Documents of Massachusetts: Being the Annual Reports of Various Public Officers and Institutions for the Year 1894* vol. 12 (Boston, 1895)
7. Bills 1847 (case 1), Tremont Nail Co. Records, Historical Collections, Baker Library, Harvard Business School.
8. Insurance policies, 1864, 1880-81 (case 2), Tremont Nail Co. Records, Historical Collections, Baker Library, Harvard Business School.
9. "Tremont Nail Works, Wareham, Mass." No. 6938, Barlow Insurance Map Collection, Historical Collections, Baker Library, Harvard Business School.



PARKER MILLS NAIL WORKS.
At Parker Mills. 1 Mile N.E. of P.O.

2 WATERWHEEL & EGG HOLE CLOTH. 4 STR. HEAT STEAM
POWER WATER & STEAM PUMP. 1000. 1000. 1000. 1000.
PUMP & JENNY P. CONNECTING DIRECT "WATER" AND
"STEAM". 2 UNDERWATER EXHAUSTERS

Store Ho.

Shed

Blueing & Mach Shop

Nail Mach. Rm.

Pond.

Bi. Sin.

Copper Shop

Store Ho.

Carpenter & Wk.

APRIL 1901
WAREHAM
MASS.

NEW BEDFORD & ONSET
ST. RY. CO.

Repair Shop

Being Buil.
(FROM PLANS)

(FORMER SITE OF)
FRANCONIA IRON & STEEL WORKS

FRANCONIA COAL CO.

Coal Shed

TREMONT NAIL CO.

ROLLING MILL & STEEL PLATE WORKS.
At Tremont 3 1/2 Miles N.E. of P.O.

2 WATERWHEEL & EGG HOLE CLOTH. HEAT STEAM
POWER WATER & STEAM PUMP. 1000. 1000. 1000. 1000.
PUMP & JENNY P. CONNECTING DIRECT "WATER" AND
"STEAM". 2 UNDERWATER EXHAUSTERS

Plate Mill

FURNACES

Plate Mill

Blooming Mill

Steel Plant Works

Foundry

Shed

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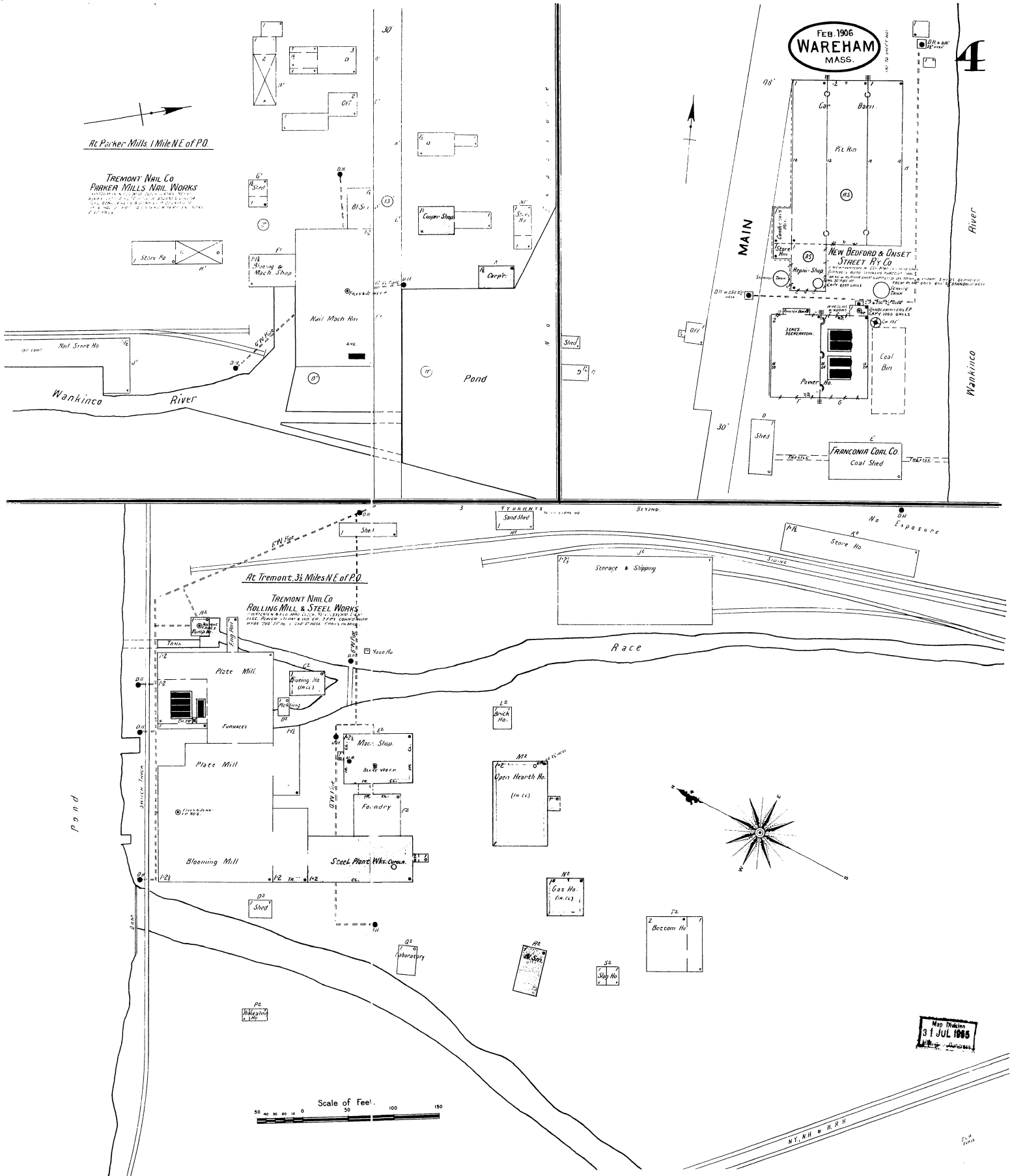
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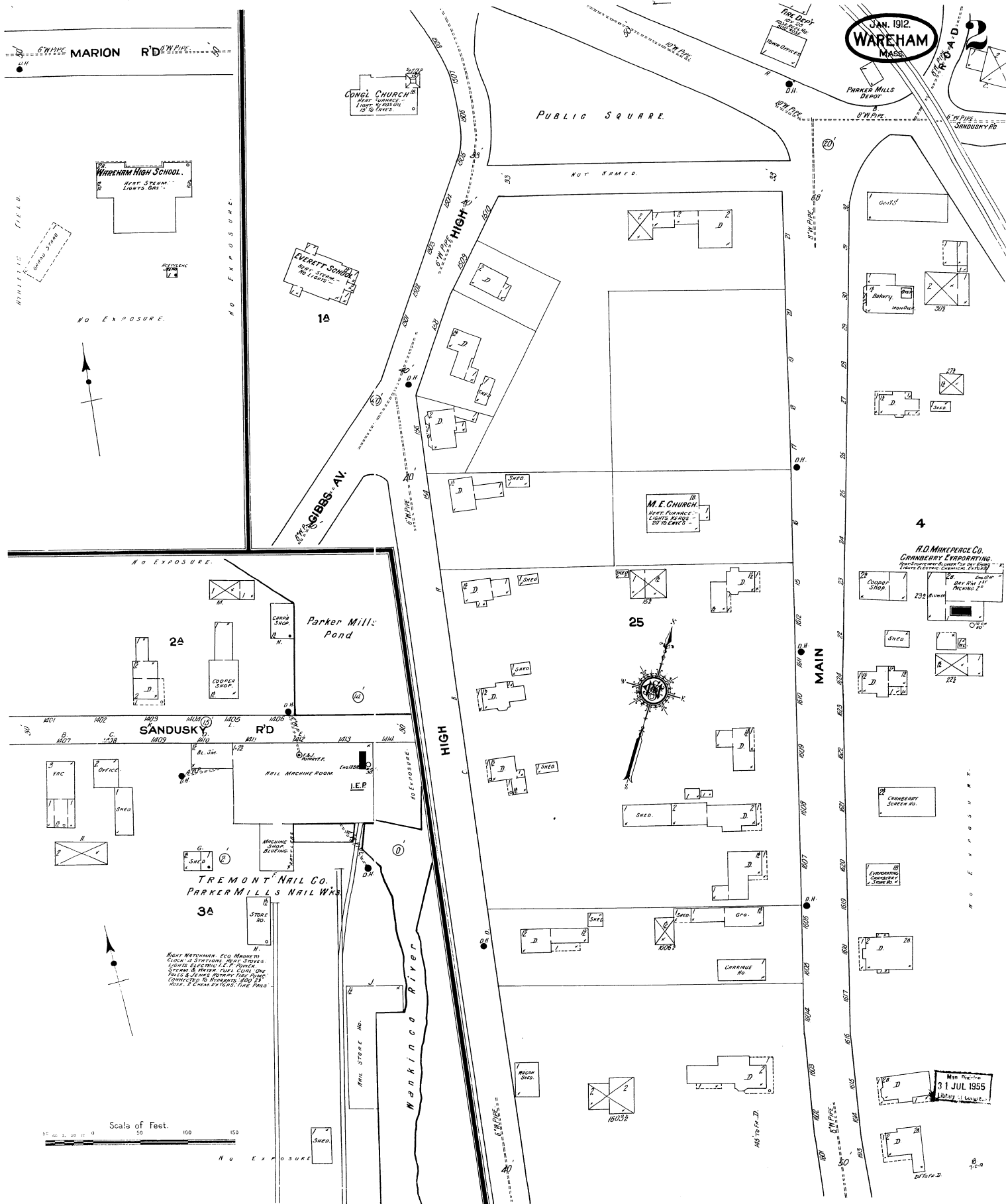
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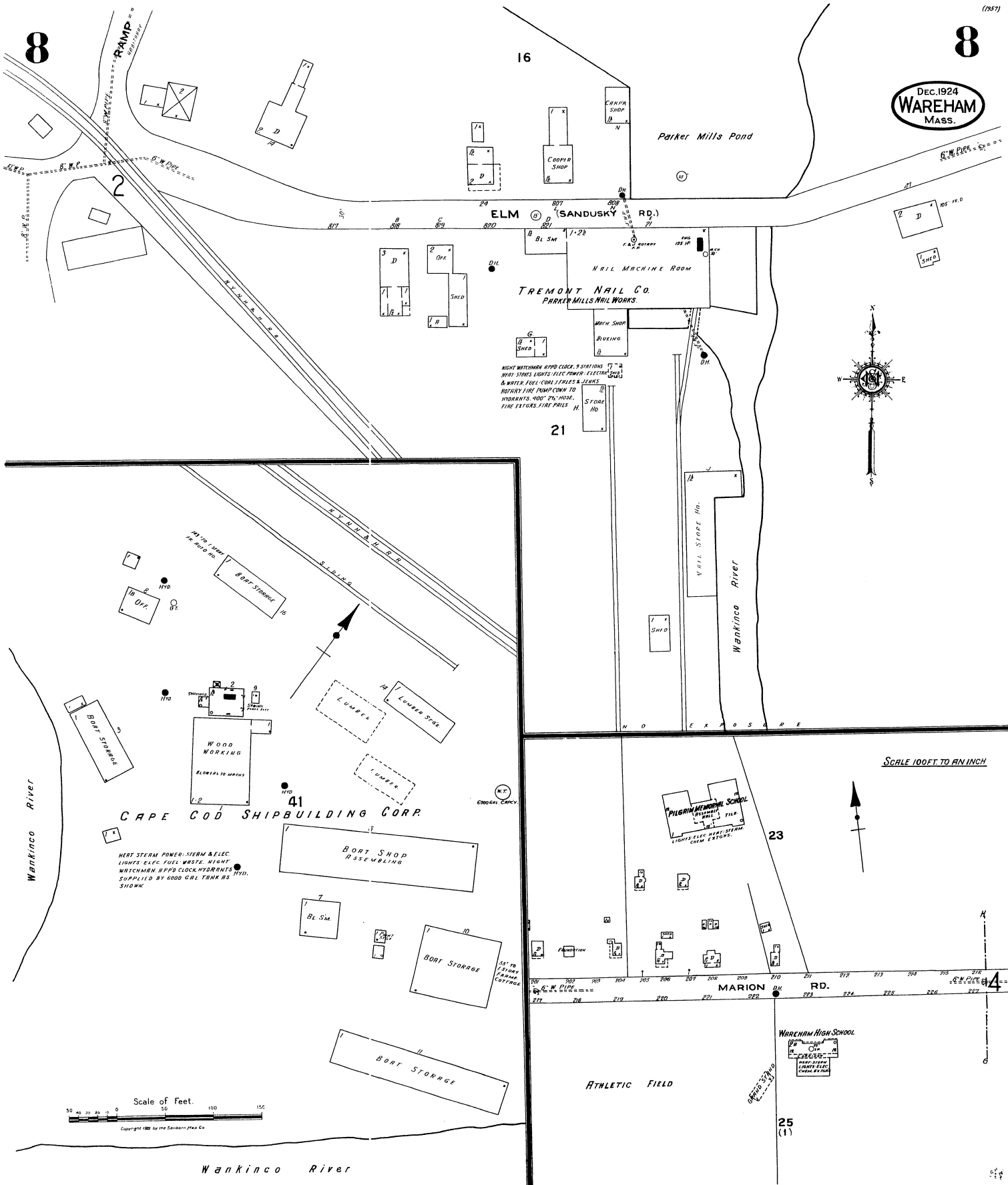
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1906 Sanborn Fire Insurance Map



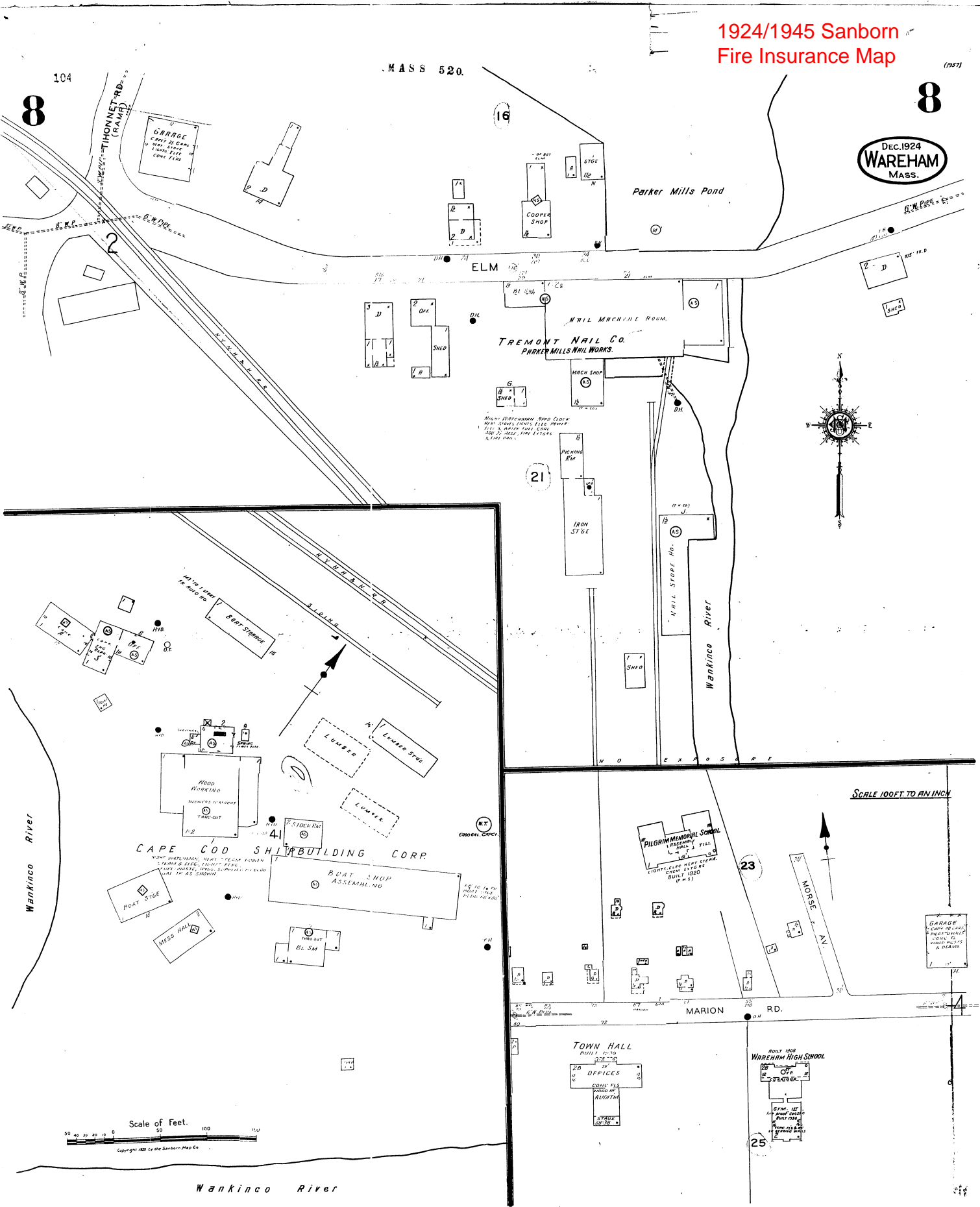


1924 Sanborn Fire Insurance Map



1924/1945 Sanborn
Fire Insurance Map

DEC. 1924
WAREHAM
MASS.



Scale of Feet.
50 100 150
Copyright 1924 by the Sanborn Map Co.

SCALE 100 FT. TO AN INCH

1/22
PRIVATE AND SPECIAL

STATUTES

OF THE

Commonwealth of Massachusetts,

FROM MAY 1822, TO MARCH 1830:

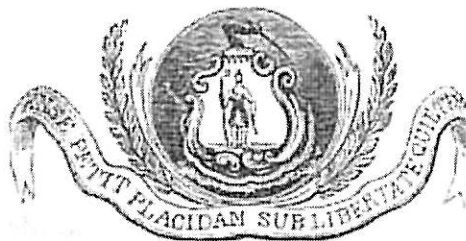
REVISED AND PUBLISHED

BY AUTHORITY OF THE LEGISLATURE,

IN CONFORMITY TO A RESOLVE,

PASSED APRIL 16, 1836.

VOL. VI.



Boston:

PUBLISHED BY DUTTON AND WENTWORTH, STATE PRINTERS,
Nos. 13 and 12 Exchange Street.

1837.

establish for the due management of the affairs of the corporation, and the care and regulation of the school; and no vote of the proprietors at any meeting shall be deemed valid, unless the subject matter thereof shall be inserted particularly in the notification for calling the meeting.

SECT. 4. *Be it further enacted*, That Moses Wingate, First meeting. Esquire, be empowered to call the first meeting of said proprietors, by giving at least fourteen days notice in some public newspaper printed in Haverhill.

SECT. 5. *Be it further enacted*, That the Legislature of Legislative control. this Commonwealth shall have power, at any time hereafter, to alter or repeal this act. [Jan. 28, 1828.]

An Act in addition to an Act, entitled "An Act to incorporate the Third Congregational Society in Cambridge."

Chap. 27.

SECT. 1. *BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same*, That the owners of a pew or pews in the meeting-house of said third congregational society in Cambridge, together with the original shareholders therein, shall compose and constitute the corporation created by the act to which this is in addition, and have all the rights and privileges of membership, and may raise money by a tax on the pews in said meeting-house, for the support of public worship therein, and defraying other necessary expenses of said society, until the fifth and sixth sections of said act of incorporation shall come into operation by the sale or division of all the pews in said house, in conformity to the fifth section of said act.

1827 ch. 4.

Who shall constitute corporation, &c.

SECT. 2. *Be it further enacted*, That said society shall have the power by vote, and on such conditions as they shall think expedient, to exempt from taxes both before and after said fifth and sixth sections shall come into operation as aforesaid, such of the original shareholders in, or subscribers to said meeting-house, as may purchase pews therein, or invest their stock in said meeting-house in pews, and all pews that shall remain unsold belonging to the shareholders, while and so long as the pews owned by said shareholders or subscribers, shall remain unsold or unoccupied by them. [Feb. 1, 1828.]

Exemption from taxes.

An Act to establish the Wareham Iron Company.

Chap. 28.

SECT. 1. *BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same*, That Jared Pratt, Isaac Pratt, Charles Wilbar, Benjamin Thompson, Newton Willey, Josiah L. James, Benjamin Rodman and Nathan Caswell, together with such other persons as have associated or may hereafter associate with them, their successors and assigns, be, and they are hereby made a corporation by the name of the Wareham Iron Company, for the purpose of rolling copper, and rolling and slitting iron, and manufacturing bar iron, steel, anchors, nails, machinery and all other modifications of iron, copper, and other metals, in the town of Wareham, and for this purpose shall have all the powers,

Persons incorporated.

Powers and duties.

1808 ch. 65.

Real and personal estate.

and privileges, and be subject to all the duties and requirements contained in an act passed in the year of our Lord, one thousand eight hundred and nine, entitled "an act defining the general powers and duties of manufacturing corporations," and in the several acts passed in addition thereto.

SECT. 2. *Be it further enacted*, That the said Wareham Iron Company in their corporate capacity, may lawfully hold and possess all such real and personal estate, as may be necessary and convenient for carrying on the said manufactures, and the conducting their said business : *provided*, the value of such real estate shall not exceed one hundred and fifty thousand dollars, and the value of such personal estate shall not exceed two hundred thousand dollars. [Feb. 1, 1828.]

Chap. 29.

1813 ch. 3.
1826 ch. 50.

Ministerial fund.

An Act in addition to an Act entitled "An Act to incorporate the trustees of the Ministerial Fund in the town of Berkley."

SECT. 1. *BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same*, That an act, entitled "An Act to incorporate the trustees of the Ministerial Fund in the town of Berkley," passed June the ninth in the year of our Lord, one thousand eight hundred and thirteen, shall be so construed, as to place the said ministerial fund within the control, and subject to the management of the congregational society in the town of Berkley.

Accountability of trustees.

SECT. 2. *Be it further enacted*, That the trustees of said fund, and their successors in office, shall be held accountable to the said congregational society only, and not to the town.

Legislative control.

SECT. 3. *Be it further enacted*, That this act may be altered, amended, or repealed, at the pleasure of the Legislature. [Feb. 1, 1828.] Add. act, 1832 ch. 30.

Chap. 30.

Boundary line.

An Act altering the Dividing Line between the towns of Southampton and Easthampton.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, That the dividing line between the towns of Southampton and Easthampton be altered as follows, that is to say : beginning at the northwest corner of Hervey Coleman's land, at a stake and stones, in the existing line between said towns, thence on the line between land of said Coleman and the heirs of Solomon Clapp, deceased, south, sixty-nine degrees east, eighteen rods, thence south, forty-eight degrees east, five rods and nineteen links, to land of Worcester Avery, thence between the said Avery's and said Coleman's land, south, nineteen and one half degrees west, twenty-nine rods, to land of Samuel Coleman, thence between said Coleman's and said Avery's land, north, eighty-nine and one half degrees east, fifty-five rods and eleven links, thence south, thirty-five and one half degrees east, twenty-nine rods, to the highway, thence, on the highway aforesaid, south, seventy-one degrees west, twenty-nine rods, to the northwest corner of Samuel Coleman's home lot, thence between said Coleman's and Spencer Clapp's land, south, nineteen and one half degrees east, thirty-six rods, to a pine tree, thence south, twenty-three and one half

1843, 1844, 1845
1843, 1844, 1845
ACTS

AND

RESOLVES

PASSED BY THE

General Court of Massachusetts,



1843, 1844, 1845;

TOGETHER WITH THE ROLLS AND MESSAGES.

—
PUBLISHED BY THE SECRETARY OF THE COMMONWEALTH.
—



Boston, 1845

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manufacturing cotton goods in the town of Fall River, in the county of Bristol; and for this purpose shall have all the powers and privileges, and be subject to all the duties, restrictions and liabilities, set forth in the thirty-eighth and forty-fourth chapters of the Revised Statutes.

To manufacture cotton goods in Fall River.

SECT. 2. The said corporation may hold, for the purpose aforesaid, real estate to the amount of one hundred thousand dollars, and the whole capital stock of said corporation shall not exceed the amount of three hundred thousand dollars. [Approved by the Governor, Jan. 29, 1845.]

Real estate not to exceed \$100,000, and capital stock \$300,000.

An Act in addition to an Act incorporating the Revere Copper Company.

Chap. 12.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

The Revere Copper Company are hereby empowered to increase their capital stock to the sum of five hundred thousand dollars, and to hold, for the use of said corporation, real estate, in the harbor of Boston, to an amount not exceeding one hundred thousand dollars. [Approved by the Governor, Jan. 29, 1845.]

Capital stock may amount to \$500,000, and real estate to \$100,000.

An Act to increase the capital stock of the Perkins Mills.

Chap. 13.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

The Perkins Mills are hereby authorized to increase their capital stock, by the creation of such number of shares, not exceeding fifty of one thousand dollars each, as the said corporation may require for the convenient management of their business. [Approved by the Governor, Jan. 29, 1845.]

Capital stock may be increased by 50 shares of \$1000.

An Act establishing the salary of the District Attorney for the Southern District of this Commonwealth.

Chap. 14.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :

From and after the first day of April, in the year one thousand eight hundred and forty-five, the district attorney for the Southern District of this Commonwealth shall receive a salary of one thousand dollars a year, to be paid to him out of the treasury of this Commonwealth, in equal quarterly payments, in full for all services rendered by him. [Approved by the Governor, Jan. 29, 1845.]

Salary to be \$1000 annually from April 1, 1845.

An Act to incorporate the Parker Mills.

Chap. 15.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows, viz :

SECT. 1. John A. Parker, Benjamin Rodman, and

Persons incorporated,

Thomas J. Coggeshall, their associates and successors, are hereby made a corporation, by the name of the Parker Mills, for the purpose of manufacturing iron, zinc, copper, lead, cotton, and wool, in the town of Wareham, in the county of Plymouth; and for this purpose shall have all the powers and privileges, and be subject to all the duties, restrictions and liabilities, set forth in the thirty-eighth and forty-fourth chapters of the Revised Statutes.

to manufacture iron, &c., cotton and wool, in Wareham.

Estate not to exceed \$150,000, and capital stock \$300,000.

SECT. 2. Said corporation may hold, for the purposes aforesaid, real estate to the amount of one hundred and fifty thousand dollars; and the whole capital stock of said corporation shall not exceed the amount of three hundred thousand dollars. [Approved by the Governor, Jan. 29, 1845.]

Chap. 16. An Act in addition to an Act entitled An Act to establish the Fall River Iron Works Company.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:

May manufacture cotton yarn and cloth, and print cotton.

Estate not to exceed \$500,000, and capital stock \$1,000,000.

SECT. 1. The Fall River Iron Works Company is hereby authorized to manufacture cotton yarn and cloth, and to print cotton cloths.

SECT. 2. Said corporation, for the purposes aforesaid, may hold real estate to the amount of five hundred thousand dollars, and the whole capital stock shall not exceed one million of dollars. [Approved by the Governor, Jan. 29, 1845.]

Chap. 17. An Act concerning Mutual Fire Insurance Companies.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:

Policies create a lien on the personal property insured, to secure deposit notes, &c.

Provided, &c.

Every policy made by any Mutual Fire Insurance Company shall, of itself, create a lien on the interest of any person insured, in any personal property thereby insured, for the securing the payment of his deposit note, and of any sums for which he may be assessed in consequence of effecting such policy: *provided*, the extent of such liability, and the intention of such corporation to rely upon such lien, shall be set forth in the policy; and that, upon the alienation of the property to a bona fide purchaser, the lien shall cease, unless such policy shall be continued in force by consent of the purchaser. [Approved by the Governor, Jan. 29, 1845.]

Acts and Resolves passed by the
Legislature of Mass. in the year 1843, 1844,
(Boston, 1845) 1845

1845.—CHAP. 87—90.

431

channel in said river, and shall have the right to lay vessels at the sides and end of the same, and receive dockage and wharfage therefor: *provided*, that this act shall in no wise affect the legal rights of any persons or corporations whatever. [Approved by the Governor, Feb. 28, 1845.] *Provided, &c.*

An Act to incorporate the Tremont Iron Company.

Chap. 88.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:

SECT. 1. Charles L. Hayward, William Thomas, James T. Hayward, their associates and successors, are hereby made a corporation, by the name of "Tremont Iron Company," for the purpose of manufacturing iron in the town of Wareham, in the county of Plymouth; and, for this purpose, shall have all the powers and privileges, and be subject to all the duties, restrictions and liabilities, set forth in the thirty-eighth and forty-fourth chapters of the Revised Statutes.

Persons incorporated to manufacture iron in Wareham.

SECT. 2. The said corporation, for the purposes aforesaid, may hold real estate to the amount of fifty thousand dollars; and the whole capital stock of said corporation shall not exceed the amount of one hundred and fifty thousand dollars. [Approved by the Governor, Feb. 28, 1845.]

Real estate not to exceed \$50,000, and capital stock \$150,000.

An Act to authorize Thomas Tileston to extend his Wharf.

Chap. 89.

BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows:

Thomas Tileston, proprietor of a certain wharf known as Tileston's wharf, situate and fronting on Broad street, in the city of Boston, is hereby authorized to extend and maintain said wharf, into the harbor channel, as far as the line established by the act entitled "an act to preserve the harbor of Boston and to prevent encroachments therein," passed on the nineteenth day of April, in the year one thousand eight hundred and thirty-seven, and shall have the right to lay vessels at the sides and end of said wharf, and to receive dockage and wharfage therefor: *provided*, that so much of said wharf as shall be erected under authority of this act shall be built upon piles, and that this act shall in no wise affect the legal rights of any persons or corporations whatever. [Approved by the Governor, Feb. 28, 1845.]

Wharf in Boston may be extended to a line, &c.

Provided, &c.

An Act to incorporate the Worcester Aqueduct Company.

Chap. 90.

1872, '73

ACTS
AND
RESOLVES

PASSED BY THE

General Court of Massachusetts,

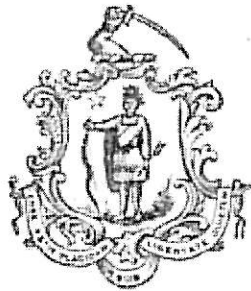
IN THE YEARS

1872, '73:

TOGETHER WITH

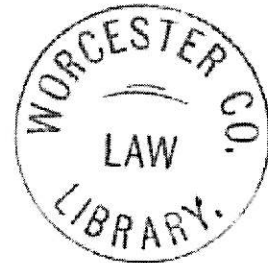
THE CONSTITUTION, THE MESSAGES OF THE GOVERNOR,
LIST OF THE CIVIL GOVERNMENT, CHANGES
OF NAMES OF PERSONS,
Etc., Etc., Etc.

PUBLISHED BY THE
SECRETARY OF THE COMMONWEALTH.



BOSTON:
WRIGHT & POTTER, STATE PRINTERS,
CORNER OF MILK AND FEDERAL STREETS.

1873.



Corporations
dissolved.

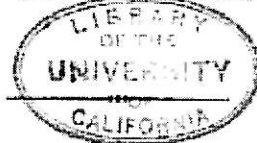
Swansey Union Manufacturing Company, The.
 Taber Plane Company.
 Temperance Hall Association in Dedham.
 Three Rivers Manufacturing Company.
 Townsend Leather Company.
 Tremont House, The Proprietors of
 Tremont Iron Company.
 Tremont Oil Company.
 Truro Pond Harbor Corporation, The.
 Truro Wharf and Breakwater Company.
 Tufts Manufacturing Company.
 Type Setting and Justifying Machine Company.
 Union Hall Society.
 Union Heel Manufacturing Company.
 Union Mills, The.
 Union Patent Knife and Needle Company.
 Union Wharf Company, Truro, which was chartered in 1831.
 Union Wheel Factory Company, The.
 Unitarian Meeting-House in Greenfield, Proprietors of the.
 United States Glass Company.
 United States Hotel Company in Lawrence.
 United States Standard Nut Company.
 Upper Falls Meeting-House in Newton, Proprietors of the.
 Upton Hotel, Proprietors of the.
 Uxbridge Woollen Manufacturing Company.
 Van Deusenville Manufacturing Company.
 Village Factory.
 Wading River Reservoir Company, which was chartered in 1846.
 Wadsworth Woollen Company.
 Wales Manufacturing Company.
 Wales Woollen Manufacturing Company.
 Walomopogge Manufacturing Company, The.
 Walpole Manufacturing Company.
 Waltham Cotton and Wool Factory Company, The.
 Wanalancett Iron and Tube Company.
 Ward Manufacturing Company.
 Ward Mills.
 Ware Gas Light Company.
 Wareham Cotton Mills.
 Wareham Iron Company.
 Washburn Steam Works.
 Watatick Manufacturing Company.
 Webster Slate Company.
 West Brook Company.
 Westfield Manufacturing Company, The.
 Westfield Paper Mills.
 Westfield White Lead Company.
 Wewantitt Bridge, Proprietors of the.
 Weymouth Aqueduct Corporation.
 Wheaton Manufacturing Company.
 Whitney Chair Company.
 Wickersham Nail Company.
 Williamstown Manufacturing Company, which was chartered in 1858.
 Willimansett Manufacturing Company.
 Winchendon Manufacturing Company.
 Wolf Hill Lead Mine and Manufacturing Company.
 Woodbridge Manufacturing Company.

THE
IRON
MANUFACTURER'S GUIDE
TO THE
FURNACES, FORGES AND ROLLING MILLS
OF
THE UNITED STATES
WITH
DISCUSSIONS OF IRON

AS
A CHEMICAL ELEMENT, AN AMERICAN ORE, AND A MANUFACTURED
ARTICLE, IN COMMERCE AND IN HISTORY.

BY J. P. LESLEY,
SECRETARY OF THE AMERICAN IRON ASSOCIATION,
AND
PUBLISHED BY AUTHORITY OF THE SAME.

WITH MAPS AND PLATES.



NEW YORK:
JOHN WILEY, PUBLISHER.

LONDON:—TRUBNER & CO.

1859.

nails. Seven years ago the same company owned the Eel River Nail Works (four miles south, now a Duck factory) also, and made in both 30,000 casks of nails.

10. Tremont Rolling Mill, situated at the junction of the Cape Cod railroad and its branch to New Bedford, five miles north of Wareham and forty-six miles from Boston, in Plymouth county Massachusetts, is owned by the Tremont Iron Company, Andrew S. Nye, superintendent. An old nail factory stood here. The present company raised the dam to 25 feet and re-erected the works in 1843. It has 23 furnaces in all, 3 trains of rolls, 90 nail machines, driven by water power, and made in 1854 4,707 tons of nails, hoops and a few shapes. It never made many shapes. A hoop mill is attached, which ran for a time but has done nothing for more than a year.

11. Weweeantit Rolling Mill, No. 1, situated one quarter mile west of Weweeantit Depot, Cape Cod railroad, 4 miles north of Wareham village or "Narrows," and one mile south of Tremont junction of New Bedford Branch in Plymouth county Massachusetts, owned by Lewis Kenney, J. H. Hall, George Gibbs, J. H. Kenney, and managed by Lewis Kenney, is known by its old name of Toby's Mill, was built in 1854, has 5 heating furnaces, 2 trains of rolls and 32 nail machines, driven by steam and water, and made in 1856 2,061 tons of nails out of blooms prepared in No. 2.

12. Weweeantit, No. 2, situated on the shore at Wareham Narrows, one quarter mile south of Wareham depot, was a revival and new location in 1854 of some very old works back of No. 1, and has 2 double puddling furnaces, 1 train of rolls, and a hammer driven by steam, and made in 1856 about 1,200 tons of blooms out of pig iron and some scrap. Connected with it is a foundry and heavy machine shop, at which Winslow squeezers, etc., are made.

13. Parker Rolling Mills, situated, No. 1, the Railworks, at the depot, one mile from Wareham; No. 2, the rolling and puddling works, two miles north of the depot (where Mr. Boyd superintends), in Plymouth county Massachusetts, Caleb Sprague agent. The two mills have 16 furnaces in all, 3 trains and 84

D

nail machines, driven by water power, and made in 1856 330 tons of cut nails and spikes.

14. Agawam Rolling Mill, situated a furlong north of Agawam depot on the Cape Cod railroad, in Plymouth county Massachusetts, and owned by the Agawam Nail Company, Samuel T. Tisdale of New York owner and manager, was built in 1836, rebuilt in 1842, enlarged in 1849, at which time the Glen Rolling Mill was added. This lies two and three-quarter miles further north, and was intended merely to increase the make; it has not been used for nearly a year. Both use the water from Half-way pond, a large natural reservoir. The mills have 15 furnaces in all, 3 trains of rolls and 80 nail machines, and made in 1854 3,600 tons of nails out of pig iron and some blooms and scrap.

15. Kinsley Iron Works, in Canton, Norfolk county Massachusetts, at the end of the Canton branch of the Providence railroad eighteen miles south of Boston. There is a foundry, a machine shop and a forge, with six hammers attached to the mill.

16. Old Colony Rolling Mill, situated part in Taunton, part in Raynham, on two sides of the Taunton river and New Bedford branch of Providence railroad, four miles southeast of Taunton village, in Bristol county Massachusetts, and owned by the Old Colony Iron Company, Crocker & Co., was built in 1820. The present works, erected in 1844, consist of a nail plate rolling mill, a tack plate rolling mill, a hoop mill not in use, a nail factory, and a shovel factory. They contain 16 furnaces in all, 3 trains of rolls, and 96 nail machines, driven by steam and water power, and made in the fiscal year of 1855-6 106,000 kegs of nails, 6,223 dozen shovels, 1,100 tons of tack and shovel plate, and 195 tons of hoop iron, out of puddled pig iron, with some puddled scrap and foreign bar.

17. Gosnold Rolling Mill, situated at the upper end of New Bedford city at the extremity of Second street, owned by the Gosnold Mill Company, William Philips of New Bedford treasurer, Lemuel Kullock general superintendent, Bristol county Massachusetts, commenced running in 1856, has 4 furnaces and

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WILEY'S
AMERICAN IRON TRADE
MANUAL

OF THE

LEADING IRON INDUSTRIES OF THE UNITED STATES,

WITH A DESCRIPTION OF THE IRON ORE REGIONS, BLAST FURNACES, ROLLING MILLS,
BESSEMER STEEL WORKS, CRUCIBLE STEEL WORKS, CAR WHEEL AND CAR
WORKS, LOCOMOTIVE WORKS, STEAM ENGINE AND MACHINE WORKS,
IRON BRIDGE WORKS, IRON SHIP YARDS, PIPE AND TUBE
WORKS, AND STOVE FOUNDRIES OF THE COUNTRY,

GIVING THEIR LOCATION AND CAPACITY OF PRODUCT.

COMPILED AND EDITED BY

THOMAS DUNLAP.

NEW YORK:

JOHN WILEY AND SON, 15 ASTOR PLACE.

1874.

Franconia Iron and Steel Works.—Proprietors, Franconia Iron and Steel Co., Wm. E. Corbin & Co., No. 3 Oliver Street, Boston, Mass. Location of mill, Wareham, Plymouth County. Character of product, bar iron, hoop and rod iron. Average annual capacity, 10,000 tons. This mill was burned in 1872, and rebuilt.

Parker Mills Nail Works.—Proprietors, Parker Mills Nail Co. Location of mill, Wareham, Plymouth County. Character of product, nails and spikes. Average annual capacity, 3,000 tons. 800 hands employed.

Tremont Nail Works.—Proprietors, Tremont Nail Co. Location of mill, West Wareham, Plymouth County. Character of product, nails. Average annual capacity, 6,000 tons.

WORCESTER COUNTY.

Washburn Iron Works.—Proprietors, Washburn Iron Co. Location of mill, Worcester, Worcester County. Character of product, rails. Average annual capacity, 20,000 tons.

Washburn and Moen Iron Works.—Proprietors, Washburn and Moen Manufacturing Co. President, PHILIP L. MOEN; Treasurer, Wm. E. RICE; Secretary, CHARLES F. WASHBURN. Location of mill, Worcester, Worcester County. Average annual capacity, 3,000 tons. Character of product, wire.

SUFFOLK COUNTY.

Boston Rolling Mill.—Proprietors, W. R. ELMS & Co. Office, 17 Battery-march Street, Boston, Mass. Location of mill, Cambridge, Suffolk County. Character of product, Norway iron shapes. Average annual capacity, 6,000 tons.

Bay State Rolling Mill.—Proprietors, Bay State Iron Co. J. H. RICE, Treasurer; J. AVERY RICHARDS, Secretary. Office, Pemberton Square, Boston, Mass. Location of mill, South Boston. Character of product, rails and homogeneous steel boiler plates, made by the Siemens-Martin process. Average annual capacity, rails, 15,000 tons.

This company has lately finished an extensive plate mill, capable of rolling plates of the largest size, which would have gone into operation in the fall of 1873 but for the depression. The main building of the new mill is 240 feet long and 141 feet wide, and has an L 70 by 30 feet. The mill has six heating furnaces with boilers, the stacks of which are of iron lined up with fire-brick. There will be two trains of rollers, each nine feet long and thirty inches in diameter. The works will be driven by a condensing engine of 1,000 horse-power, the cylinder of which is 40 inches in diameter; stroke, 6 feet. The two fly-wheels are 24 feet in diameter, and weigh 53 tons each.

New England Iron Works.—Proprietors, New England Iron Co. Location of mill, Reedville, Suffolk County. Character of product, bars and rod iron. Average annual capacity, 2,500 tons.

Norway Iron Works.—Proprietors, NORTON & Co. Offices: New York, Boston,

Public Documents of Massachusetts:

BEING THE

ANNUAL REPORTS

OF VARIOUS

PUBLIC OFFICERS AND INSTITUTIONS

FOR THE YEAR

1894.

PUBLISHED BY THE SECRETARY OF THE COMMONWEALTH.

Vol. XII.

BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
18 POST OFFICE SQUARE
1895.

[CHAPTER 124.]

AN ACT TO ESTABLISH AN ALEWIFE FISHERY IN THE TOWN OF
WAREHAM.

Be it enacted, etc., as follows:

SECTION 1. The Tremont Nail Company is hereby authorized to make the necessary improvements for the introduction and taking of alewives, salmon and shad in the Parker Mills pond and the Tihonet pond, so-called, in the town of Wareham, and to construct fishways and outlets from said ponds through the dams to the Wankineo river, so-called.

SECTION 2. The said Tremont Nail Company shall be liable to pay all damages that shall be sustained by any person in his property in carrying into effect this act. If any person sustaining damage as aforesaid shall not agree with the said parties in interest as to the amount of damages to be paid he may have his damage assessed in the manner provided by law in respect to land taken for highways.

SECTION 3. Any fishery so created shall be deemed to be the property of the said Tremont Nail Company and its successors and assigns.

SECTION 4. No person without the permission of said Tremont Nail Company or its successors or assigns shall take, carry or haul on shore any alewives, salmon or shad in said ponds and river.

SECTION 5. Whoever violates any of the provisions of this act, or any of the regulations of the said parties in interest in said fishery, shall forfeit and pay a sum not less than five nor more than fifty dollars for each offence, to be recovered by prosecution before any court in the county of Plymouth having jurisdiction of the same. Said forfeiture shall accrue to the benefit of the town of Wareham.

SECTION 6. All prosecutions under the preceding section shall be instituted within thirty days from the time the offence was committed.

SECTION 7. This act shall take effect upon its passage. [*Approved March 16, 1894.*]

[CHAPTER 124.]

AN ACT RELATING TO THE FISHERIES IN BASS RIVER.

Be it enacted, etc., as follows:

SECTION 1. The selectmen of the towns of Yarmouth and Dennis, or a majority of them, are hereby authorized and empowered to meet together annually, on or before the twentieth day of April, at such place as shall be agreed upon by the chairmen of the respective boards, and at that meeting or any subsequent meeting previous to the twentieth day of April in each year shall prescribe the times, places and manner of taking herring or alewives, perch, salmon and trout in Bass

May 1847

The Parker Mills

On Account with Saml. Parker & Co.

1847	P. amount rendered	4.600 12
May 17	Costing American 4380 lb. of	3 07
20	" " " 3110 " of	- 2 10
21	" " " 3990 " of	2 67
22	" " " 3520 " of	2 36
	for expense of stage to Wrentham	8 "
24	5 1/2 days labor on Wheel @ 7%	9 62
27	paid A. E. Thompson insurance	3 12 "

← labor on
w/wheel

Credit

1847	By amount rendered	211 21
May 20	6390 lb. Old Castings @ 25¢	71 14 1/2
31	3635 " " " @ 25¢	40 87 1/2
		<u>\$322 92 1/2</u>
		4.939 94 1/2

May 1	For amt. paid for Schieffelin	794 37
	" " " "	1.500 "

all

Tremont Nail Co.
Case 1

Parker Mills Iron Co
Wareham
Mass

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Samuel Pett Mfg
Apr 27

Received April 27, 1877
Wareham Iron Co Agent of

We have you by check from
Capt Burgess the amount bill of order
Please to acknowledge the above by
receipt by Capt Burgess or other
Respectfully Yours
Almon C. Chase, Agent
By John Q. Cauter

Parker Mills Iron Co Agent of Samuel Pett Mfg
400 1/2 inch steel rods No 37 1/2 \$15.00
400 1/2 inch steel rods No 37 1/2 33 13.20
200 1/2 inch steel rods No 37 1/2 33 6.60
400 Large Rings 40 16.00
100 Large Rings 40 4.00
400 Small do 37 1/2 15.00
200 Large Steel Heads 42 8.40
400 Small do 37 1/2 15.00
160 Iron do 40 6.40
2000 1/2 inch straight do 37 1/2 75.00
174.60

The Parker Mills

In acct. with Leavelle, Perkins & Co

1877	T. amount rendered			11,939 94
June 1	" Paid for Lathigh Coal	794 37 1/2		
	do your note	1,500		12,294 37
2	13 days Labor by Millwrights @ 25%	22 75		
	Casting Plank 11070 lb @ 2 1/2%	2 73		25 48
3	do do 3,210 - @ 1/2%			2 15
4	do do 3,800 - @ 1/2%			2 32
7	212 lb Castings @ 3 1/4%			6 89
8	Casting Plank 6740 lb @ 2 1/2%	4 56		
	17 days Labor Millwrights @ 25%	29 75		34 31
9	Tons 2 1/2 - 8 - 2 - 23 Lathigh Coal @ 176 61			644 00
	transportation of Stone on from Fall River to Middlebury			
	Tons 2 - 15 - 0 - 10 @ 1 1/2%	3 39		180
10	Casting Timber 2670 lb @ 2 1/2%			1 79
11	do do 1500 - @ 1/2%	1		
	1442 feet 2 in Plank @ 5 1/4%	72 10		73 10
11	paid L.C. Sumner bill	3 25		
	Wm. Mason & Co	45		
	Lawson & Sons do	19		
	Seam & Horse	14 82		72 09
14	11 1/2 days Labor Millwrights @ 25%	20 12 1/2		
	1 C. Coupling			
	1 " " 3 577 lb @ 2 1/2%	11 75		
	1 3/4 days Labor @ 2 1/2%	4 37 1/2		43 24
15	Cash 1100			11,000
	do 1500			11,000

Credit

1877	By amount rendered	322 92		
June 10	2770 lb Old Castings @ 25%	30 87		
11	amt. recd of Lawson & Sons	48 32		
14	7870 lb. Old Castings @ 25%	88 06		
	4480			
		490 17 1/2		9,675 90

An acct with Lemuel Perkins R. Dr.

1857	Aug 1 st	Balance due this day			5,691.78
2	"	1 C. I. Plange 2099 lb. @ 34¢	68.22		
		Furnace Castings 3,127 - @ 3¢	93.81		
		1 17 1/2 Hoop 101 - @ 10¢	10.10		172.13
3	"	339 feet 2 1/2 in plank @ 3¢			16.95
5	"	136 1/2 feet 1 1/2 in. O. Plank @ 3¢	4.08		
		Castings 5,300 lb. @ 3¢	9.82		18.90
9	"	Company Castings 5775 lb. @ 3¢	17.33		
		2 C. I. Couplings			
		1 .. Boy 1002 lb. @ 2 1/2¢	32.57		205.91
		2 .. finished Chilled Balls			
		1000 lb. @ 3¢	3.00		
		18 1/2 days labor by Millwrights	32.38		352.38
11	"	26 M. L. Cants 335 lb. @ 10¢	33.50		
		Castings 3690 lb. @ 4 1/2¢	6.59		40.09
12	"	2 Comp. Boxes 140 lb. @ 28¢	39.20		
		22 M. L. Cants 290 lb. @ 10¢	29.00		
		Castings 4870 - @ 4 1/2¢	8.69		76.89
14	"	10 days Labor Millwrights	17.50		
		use of plank for laying			
		ours on heel	5.00		22.50
17	"	M. L. Balls 1077 lb. @ 12 1/2¢	134.12		
		Castings 4,388 lb. @ 4 1/2¢	16.56		153.85
20	"	Castings 4,015 - @ 3 1/2¢	130.49		
		M. L. Washers 35 - @ 12 1/2¢	4.37		
		2 Comp. Boxes 49 lb. @ 28¢	13.72		
		Castings 4040 lb. @ 4 1/2¢	7.21		153.79
24	"	4900 - - - @ 4 1/2¢			8.75
25	"	2 = 8" Nail Machines @ 6¢	3.20		
		Castings 2907 lb. @ 3 1/2¢	9.48		
		2 C. I. Plates 61 lb. @ 3¢	1.83		416.31

Credit

1857	Aug 5	By Old Castings 4530 lb. @ 2 1/2¢	57.13		
12	"	" " 2400 - @ -	27.68		
13	"	" " 2310 - @ -	25.78		
19	"	" " 5730 - @ -	97.43		
20	"	" " 5300 - @ -	92.63		
23	"	925 lb. 75 round Iron @ 4¢	37.00		
24	"	Old Castings 3,930 - @ 2 1/2¢	43.56		
25	"	" " 9,200 - @ -	28.00		
					436.33
					7327.26

Enty

Tremont Nail Co.
C.2
HB47 NL



No 4921

By this Policy of Insurance

\$ 2000

THE NORTH AMERICAN FIRE INSURANCE COMPANY,

In Consideration of Thirty-five Dollars,
to them paid by the Assured hereinafter named, the receipt whereof is hereby acknowledged,

DO INSURE

the Parker Mills

Against Loss or Damage by Fire to the Amount of

Two Thousand Dollars. viz:

- 450⁺ On their frame Nail Factory Building, including the frame Blacksmith's Shop adjoining on the West, and the frame Strap Iron House so called adjoining on the South side and run by water.
 - 750⁺ On Nail and Spike Machinery
 - 250⁺ On Drums, Shafting Pulleys and Belting for Stones and Machines
 - 125⁺ On Water Wheels.
 - 75⁺ On Furnaces
 - 45⁺ On Grindstones and frames.
 - 40⁺ On Foundations for Stones and Machines
 - 15⁺ On Blowers.
 - 10⁺ On Nail Boxes.
 - 100⁺ On Stacks for heating plates, Furnaces, cylindrical Stoves and pipe for heating Mills.
 - 140⁺ On Stocks. all contained in said building situated at Wareham Centre, Mass.
 - 2000. Liberty for other Insurance by consent of J. S. Millinghast, Agent, at New Bedford.
- Reference to a plan of the premises on file with said Agent.
Payable in case of loss to Maria and Rezia B. Williams, Elizabeth J. Deane and Betshuba W. Dunbar or their order.

1864

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Tremont Nail Co.
C. 2

80-81

PARKER MILLS.

\$41,830 One Year, January 3, 1880. Premium \$ 376.47

On their properties known as PARKER MILLS, situated at WAREHAM CENTRE, MASS., numbered as per plan on file in the office of WILLINGHAM & ALDEN, Insurance Agents, New Bedford, Mass.

1/15.000 { On their frame Nail Factory Buildings, including the frame Blacksmith's Shop adjoining on the west, and the frame Machine Shop, so called, adjoining on the south side and run by water.

1/6.000 { On Fixed and Movable Machinery of every description, including Nail and Spike Machines, Shears for Cutting Plates, Lathes, Boring Machines, Tools, Implements, Pumps, Steam, Gas and Water Pipes, Fixtures, Furniture, Couplings, and apparatus for manufacturing, including machinery supplies all contained in said above named buildings.

4.000 On Drums, Shafting, Belting, Gearing, Pulleys, for stones and machines.

2.500 On Water Wheels.

1.500 On Flumes.

500 On Grindstones and Frames.

750 On Foundations for Stones and Machines.

300 On Blowers.

80 On Nail Boxes.

1,200 On Furnace, Stacks for heating Plates, Stoves, and Pipe for heating Mills.

41.830 { On stock finished, unfinished and in process, including materials and stock supplies all contained in said above named buildings.

Permission to make necessary alterations and repairs incidental to their business and for other insurance without notice until required.

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Notes

of each

Policy

4183

4183

4183

4183

8366

8366

8366

41.830

Tremont Nail Co.
C.2
H B47 mL

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PARKER MILLS.

\$43,000.00 One Year, January 3d, 1880. Premium \$387.

On their Properties known as the PARKER MILLS, situated at "TTONET," WAREHAM, MASS., numbered as per plan on file in the office of TILTINGHAST & ALDEN, Insurance Agents, New Bedford, Mass.

On their connected frame Buildings occupied as a Rolling Mill.

On Steam Engine, Boilers, Steam and Water Pipes, all contained in said Rolling Mill Building.

On Fixed and Movable Machinery of every description, Shafting, Belting, Gearing, Drums, Shears, Rolls, Lathes, Pulleys, Hangers, Pumps, Couplings, Condenser and Balance Wheel and Foundation for Engine, Tools, Implements, Fixtures, Furniture, and Apparatus for Manufacturing, and machinery supplies, all contained in said Rolling Mill Buildings.

On Railways, Blowers, Furnaces and Stacks.

Permission to make necessary alterations and repairs incidental to their business and for other Insurance without notice until required.

No. 6938.

TREMONT NAIL WORKS,

WAREHAM, MASS.

OWNED by Tremont Nail Co.
GOODS—Nails, Plate Iron and Washers.
STOCK—Pig Iron.
CAPACITY—Use 24 tons of iron per day.

POWER—Water and Steam.
EXPOSURE—See Diagram.
SURVEYED—November 14, 1881. A. H. T.

DESCRIPTION.

Rolling and Puddling Mill—HEIGHT—one high story. SIZE—see plan. WALLS—frame. ROOF—gravel and shingle. SCUTTLE—roofs easily accessible. LADDERS—on roof. FLOORS—earth. CEILINGS—open beams.
Occupation—Puddling, squeezing and rolling iron.

Nail Works—One high story, brick, shingle and gravel roof. Floor, plank principally, part brick. Iron chimnies from annealing furnaces.

Saw Mill—About 60 feet east of nail works. One story and attic, frame, shingle roof.

Cooper and Carpenter Shop—About 150 feet east of saw mill; one story, frame, shingle roof.

Storehouse, for Plate Iron—One story, frame, covered with corrugated iron.

Gas House—One story and basement, frame, metal or gravel roof. Retorts in basement; fed from first floor.

Brick Shed—One story, frame, shingle roof. Store fire brick.

Smith Shop—About 150 feet south of rolling mill; frame, shingle roof.

SPECIAL FEATURES.

Heating—From furnaces. Coal stove in carpenter shop.

Lighting—Kerosene.

Watchman—Nights; no watch; kerosene in lantern.

Oils—Lubricating.

Hours of Work—About ten daily.

Boilers—At various furnaces.

FIRE APPLIANCES.

Fire Pump—Large size rotary pump in puddling mill, gears to main shaft; also pump at engine, for wetting down.

Vertical Pipe—None.

Tank—None.

Hydrants—One at pump and four outside.

Hose—Supply of large hose, kept in hose house, near puddling mill.

Sprinklers—None.

Casks and Buckets—About one dozen iron fire pails.

Steam Jets—None.

Extinguishers—One.

Lightning Rods—None.

Ladders—Movable and on roofs.

Auxiliary Aid—None.

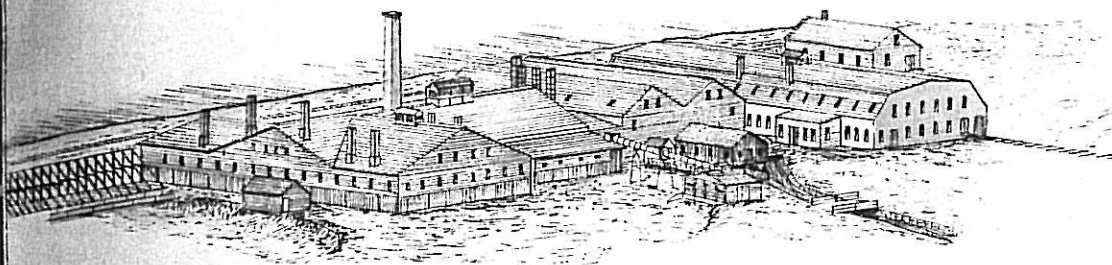
CHARACTER.

Buildings are of substantial construction and in good working order. Gas is manufactured for use at the puddling furnaces, and conveyed through a large iron tube. Business appeared prosperous.

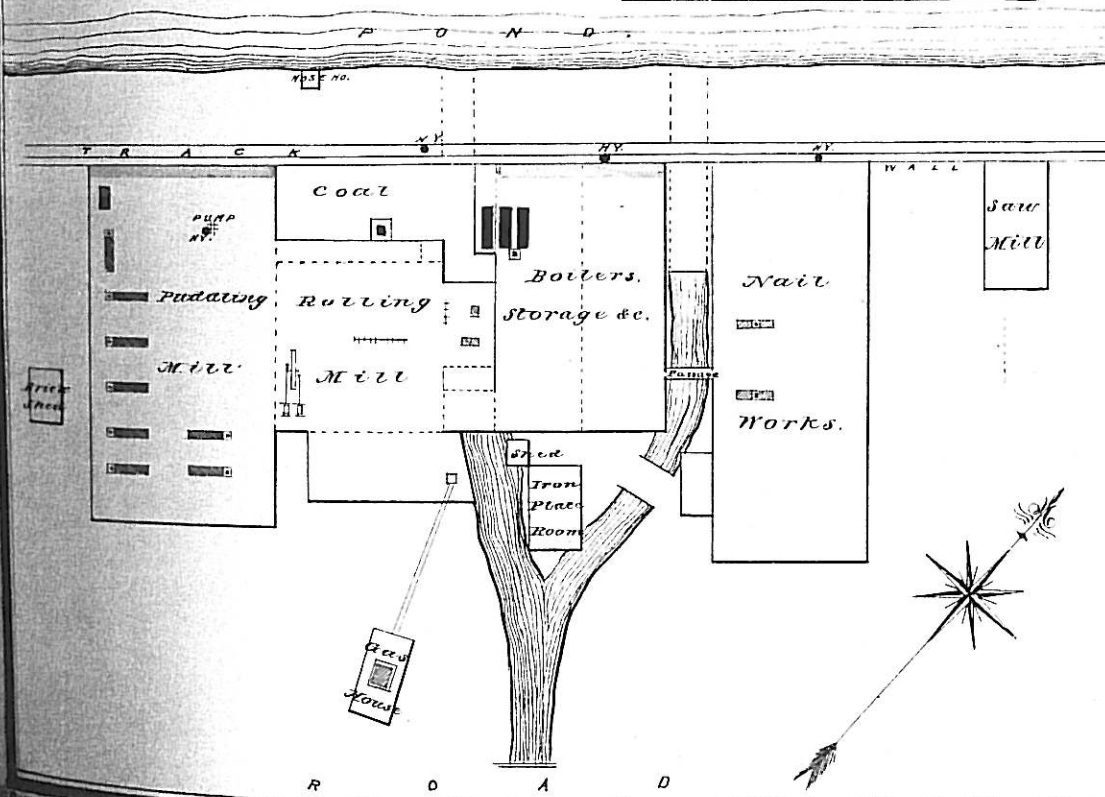
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6938

TREMONT NAIL WORKS, WAREHAM, MASS.



Scale 0 50 100 200



R O A D

Sup'l No. 6938.

TREMONT NAIL COMPANY'S WORKS,
WEST WAREHAM, MASS.

OWNED—By above company.

GOODS—Nails.

STOCK—Iron and steel.

CAPACITY—Large.

POWER—Water and steam.

EXPOSURE—None.

SURVEYED—August 17, 1887. A. H. T.

GENERAL DESCRIPTION.

Rolling and Puddling Mill—One story, frame, composition roof, furnaces, squeezer and rolls; also pump and engine; dynamo for electric lights in partitioned room.

Old Mill—Adjoining east side of rolling mill; one story, frame, shingle roof; occupied mainly for storage; also contains boilers.

Store House—Twenty feet south of above; one story; clad with corrugated iron; small frame pickling house adjacent to north-west corner.

Nail Works—One high story, brick, shingle and gravel or composition roof; nail machines, annealing furnaces, engine and pump.

Saw Mill—About 55 feet east of nail works, one story, frame, shingle roof.

Converter Building—Adjoining south end of puddling mill; one high story, iron frame and roof and sides, covered with corrugated iron. cupola and elevator at south end.

Blower House and Pumping Station—One high story, frame, roof corrugated iron.

Fire Brick Shed—West of puddling mill, one story, frame, shingle roof; store fire brick.

Frame Charcoal Shed—About 75 feet south of converter building, and smith shop about 130 feet south-west of same building.

Store Houses and Office—One hundred feet and more east of nail works; also a large frame storehouse in course of construction several hundred feet south of nail works.

SPECIAL FEATURES.

Heating—Stoves where necessary, office, saw mill, and carpenter shop.

Lighting—Mainly by electricity; arc lights, wires insulated, hung on iron hooks. Some lanterns are used about the works, and have wire guards.

Watchman—Nights; electric clock in superintendent's bed room; six stations, well located; kerosene lantern; also one man on duty nights.

Furnaces and stacks appear well arranged. Drying ovens are in frame building, nearly 300 feet south of converter building.

Oils—Lubricating.

Hours of Work—About ten daily.

Boilers—Three besides those at furnaces, well set.

FIRE APPLIANCES.

Fire Pump—Large size rotary pump in puddling mill, gears to main shaft by lever; also a No. 3 Holyoke rotary, friction gear, in nail works. Each pump has a back pressure valve and works into the same system of pipes. In addition to these fire pumps there is a very large duplex Deane pump in blower house for use in the works, but which could be used as a fire pump. All draw from the flume, and have about 15 feet head.

Vertical Pipe—None.

Tank—None for fire.

Hydrants—Eight outside hydrants, beside connection at each pump.

Hose—650 feet or more, in all, of 2½ inch rubber hose; 250 feet attached to pump in puddling mill; 100 feet attached to pump in nail works, and a supply in each hose house.

Sprinklers—None.

Casks & Buckets—Sixteen iron buckets in rolling mill, and 12 in nail works.

Steam Jets—None.

Extinguishers—None seen.

Lightning Rods—None.

Ladders—Roofs easily accessible.

Auxiliary Aid—Have an organized fire department among the hands, and men are assigned to special duties and stations in case of fire. No town fire engine.

CHARACTER.

The works are being converted into a steel works. The new buildings were not completed. The furnaces will be removed from puddling mill, and iron hangers substituted for wooden ones to support railway in rolling mill. The converter building is entirely of iron, and other buildings are substantial and kept in good repair. The fire appliances are unusually good for works of this description, and hydrants are well located. Business is evidently prosperous and under good management. Supplemental plan of same date.

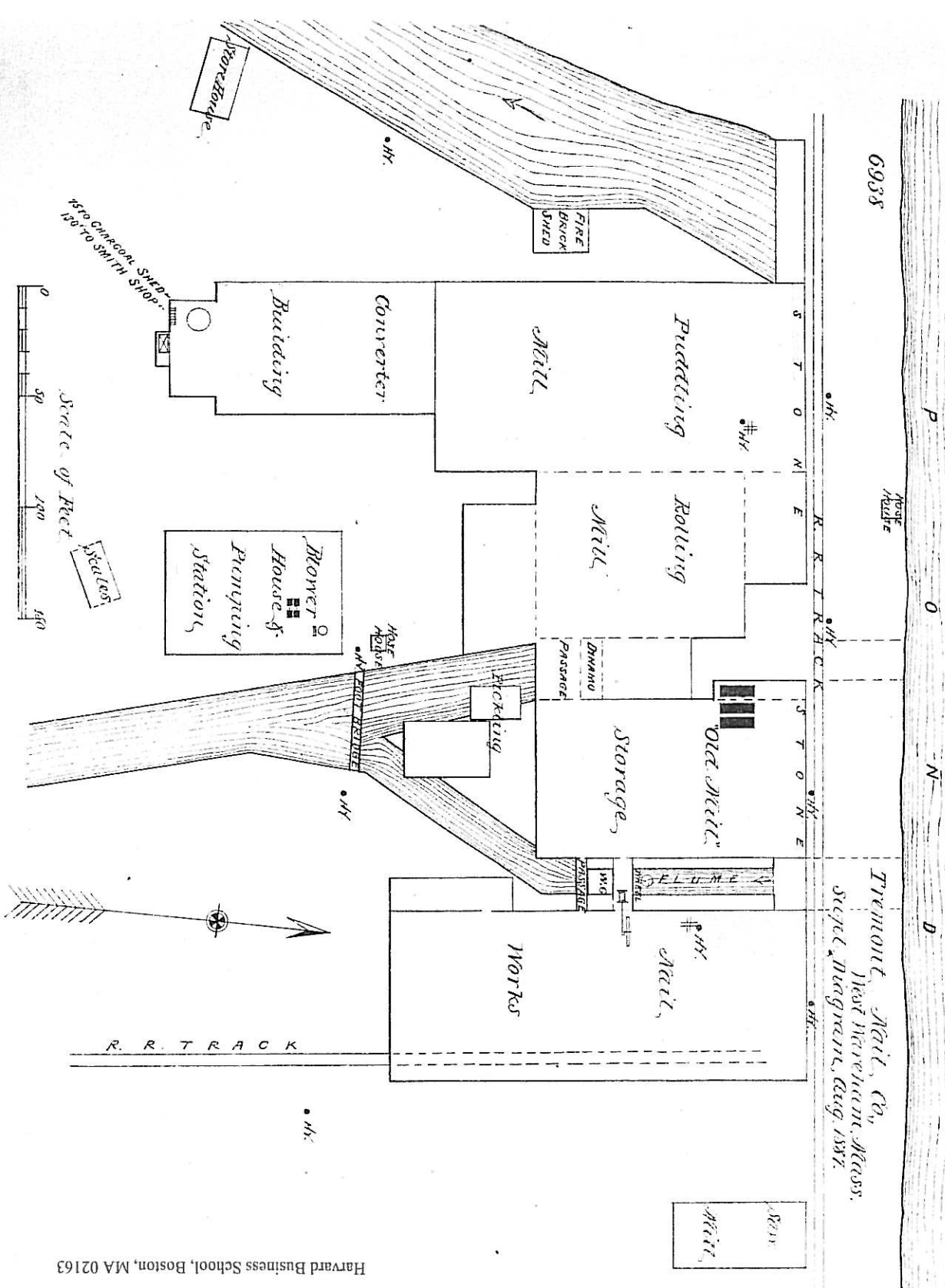
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6938

Tremont, Nail, Co.,
West Haverham, Mass.
Sept. 21, 1887.



20 small vols. 126
1845-1918
Records received from Tremont Nail Co., Wareham, Mass., March, 1975

Most of these records relate to Parker Mills, of Wareham, and date from 1845 to 1886. Originally a fulling mill, under Isaac and Jared Pratt, Parker Mills turned to nails in the 1840's. The present building dates from 1848.

Baker Library
Parker Mills
Finding Aid

The company had offices in Boston and New York City. They had extensive dealings with Lazell, Perkins, of Bridgewater; see our List for a volume and a folder relating to that company. In 1882 Parker Mills was taken over by the Bridgewater Iron Co.; the latter company failed in 1886. Meanwhile, the Tremont Iron Co., of South Wareham, was established in 1849; in 1859 this became the Tremont Nail Co. Members of the Stetson family were connected with all these businesses, and in the end, the Tremont Nail Co. acquired the property and records of Parker Mills. There are a few records, during the 1850's, for C. C. Sprague.

For references to R. G. Dun Co. credit ledgers see: Mass., v.60, p. 50,86,225 (Parker Mills), same, p.190,345 (Bridgewater Iron Co.), Mass., v.59, p.10, v.60, p.76,92 (Tremont Nail Co.), and Mass., v.59, p.10 (Tremont Iron Co.); also, v.73, p.92 (Boston office, Tremont Nail Co.) and other Boston entries.

Journals, waste books, cashbooks, and balances are complete to 1886; ledgers extend to 1883 and notes and bills to 1880. Payrolls extend to 1888, with additional ones for Tremont Nail Co. to 1918; also, there are small time books which fill two cartons; they cover about the same period as the payrolls, but give additional information on the puddlers, the pilers, and later crews under Messrs. Holland, Jefferson, etc. There is some information about amounts produced. There are incoming letters; however, the series is incomplete; there are no letter books. There are extensive files of unbound bills. Additional small leather-bound books, in case 4, contain records of interest. For detailed accounting of the entire collection, see the attached sheets.

Journals

A-1 3/8/45-9/30/51 Wareham
A-2 10/3/51-9/12/60 Parker Mills
A-3 9/15/60-2/12/78 " " (twice a month)
A-4 2/28/78-10/30/86 " " " " "
Now in "Industries, oversized", C-1, 1b554ap Relocated 2/98: Stack 5, Range 12, Unit 5
(pamphlet folder)

Waste

AB-1 3/8/45-5/31/48
AB-2 6/6/58-12/28-50 2
AB-3 1/1/51-5/31/54
AB-4 6/15/54-8/20/57
AB-5 8/31/57-11/8/61 5
AB-6 11/23/61-10/14/68 Parker Mills
AB-7 10/20/68-3/24/75 " "
AB-8 3/31/75-10/31/86 " " & Bridgewater Iron Co.

Journals- C. C. Sprague

AC-1 10/16/51-8/23/55
AC-2 4/9/52-4/18/53

Ledgers

B-1 1845-1861 A Index
B-2 1861-1883 B " Parker Mills; also Bridgewater Iron Co.

Ledger - C. C. Sprague & Co.

BA-1 1851-1855 A

Sales ledgers - Tremont Nail Co. (see also Orders below)

BB-1 1896-1901 G
BB-2 1909-1912 I

Cash

C-1 3/45-8/48
C-2 8/48-12/56
C-3 12/56-1/65 3
C-4 1/65-1/73 4 Parker Mills
C-5 1/73-10/86 5 " " & Bridgewater Iron Co.
Petty cash? 1918-1926, folder, case 1
Check stubs, 1848-1854, folder, ca. 1

Balance sheet

CA-1 1845-1847 Parker Mills
CA-2 1847-1858 " "
CA-3 1858-1874 " "
CA-4 1874-1886 " "

Notes & Bills

CB-1 1849
CB-2 1847-1851
CB-3 1852-1854
CB-4 1855-1858
CB-5 1859-1860
CB-6 1861-1863
CB-7 1864-1866
CB-8 1866-1869
CB-9 1869-1872
CB-10 1872-1875
CB-11 1875-1878
CB-12 1878-1880

Tremont Nail Co., 2

Production

Nails made (Aggregates, no names)

-1 1847-1848 folder, case 4
D-1 1849-1866 Parker Mills
D-2 1866-1887 " "

1889-1892 folder, case 4

Nailers account (gives names)

DA-1 1847-1851 Parker Mills
DA-2 1851-1853 " "
DA-3 1853-1860 " "
DA-4 1860-1868 " "
DA-5 1868-1876 " "
DA-6 1876-1886 " "

~~1865-1866, 1883, 1884 (small vols.)~~

Nails received into stock, taken from stock

DB-1 1905-1910
1907-1908 folder, case 4
DB-2 1910-1914
DB-3 1915-1919

Payrolls

DC-1 1846-1851 Parker Mills
DC-2 1851-1856 " "
DC-3 1856-1862 " "
DC-4 1862-1868 " "
DC-5 1867-1873 " "
DC-6 1873-1888 " "

DD-1 1902-1907 Tremont Nail Co.
DD-2 1907-1912 " " "
DD-3 1912-1917 " " "

Receipts

DE-1 1901-1902 Tremont Nail Co.

Work done

DF-1 1902-1911 Tremont Nail Co.
DF-2 1911-1915 " " "

Puddlers

DG-1 1847-1854
DG-2 1855-1878

Time (small vols.): June-Sep./53, June/54, Aug/54, Oct./55-,
books Nov/55-Mar/56, Apr-July/56, Aug-Dec/56, Jan-Mar/57,
case 3 July-Oct/57, Nov/57-Feb/58, Jan/59-May/59, Jan-May/60,

Tremont Nail Co., 3

Puddlers' time books, cont'd.

case 3 July-Nov./60, Dec/60-May/61, Dec/61-Dec/62, Jan-Mar/63,
Apr/63-Mar/64, Apr/64-Mar/65, Aug/66-May/67, June/67-Jan/68,
Feb-Sep/68, Oct/68-May/69, June/69-Mar/70, Mar-Oct/71,
Nov/71-Sep/72

Pilers' time books

case 3 DH-1 1847-1854⁶
(small vols.): n.d., 1853, 1855, Mar/57-May/61, Dec./61-
Feb/66, May/66-Oct/69

General time books

DK-1 1845-1847 / DK-2 1870-1872

~~DK-2~~ 1847-1848 Parker Mills folder, case 3

case 4
D-North (small vols.): Nov/51-Aug/52, Sep/52-July/53, Aug-Oct/53,
Jan-Aug/54, Apr/56-Feb/57, Mar/57-Apr/58, Jan/59-Feb/60,
Mar/60-Apr/62, May/62-July/63, Aug/63-Aug/64, Sep/64-Aug/65,
Sep/65-Aug/66, Aug/66-Jan/68, Feb-Sep/68, Oct/68-May/69,
June/69-Jan/70, Feb-Nov/70, Nov/70-July/71, Aug/71-Apr/72,
Sep/1900-May/01, Oct/1900-June/01 (C.F.Hicks), June-Sep/01,
Oct/01-Feb/02

²⁰
(Small vols.): Holland (overseer?): May-Dec/04, Dec/04-Jan/05,
July/08-Feb/09, Feb-Oct/09, May-July/10, Aug-Oct/10, Nov/10-Jan/11,
Feb-Apr/11, Apr-July/11, July-Sep/11, Oct-Dec/11, Jan-Mar/12,
Apr-June/12, June-Sep/12, Sep-Dec/12, Dec/12-Mar/13, Mar-June/13,
June-Sep/13, Sep-Dec/13, Aug-Dec/17

²²
(small vols..) A.T.Jefferson (overseer?): June-Sep/01, Oct./01-
Feb/02, Apr-June/03, Sep/04-Apr/05, Apr-Dec/05, Dec/05-July/06,
Feb-May/10, Nov/10-Feb/11, Feb-May/11, May-July/11, July-Oct/11,
Oct/11-Jan/12, Jan-Apr/12, Apr-July/12, July-Oct/12, Oct-Dec/12,
Jan-Mar/13, Apr-June/13, July-Oct/13, Oct-Dec/13, Jan-Apr/14,
Aug-Nov/14, Dec/14-Mar/15, Jan-Apr/16, May-Aug/16, Aug-Dec/16,
Dec/16-Mar/17, Mar-June/17, June-Oct/17, Oct/17-Jan/18,
Sep-Nov/18, Nov-Dec/18

(small vols.): Office: May-June/18, June-Aug/18

Orders, shipments, etc.

E-1 1852-

folders: 1869-85, 1873-78, case 4

E-2 1900-1901,

(small vol.) July/01-Mar/02 Plate orders, case 4

Consignment account

1845-1849, folder, case 4

Shipments - invoice book

EA-1 1846-1851

EA-2 1852-1859 (forms)

EA-3 1860-1871 "

EA-4 1899-1918 Weights

Tremont Nail Co., 4

Purchases for Parker Mills; iron, coal, etc.

~~EB-1 1845-1847 folder~~

EB-1 1847-1863

EB-2 1863-1886

case 4 (small vols.): ²1854, June/55-Jan/56

case 4 folder " ³cargo: 1857-58, 1858-60, 1865-68
Pictou coal, prices, 1846-1861

Carting

1847-1849 folder, case 4

(small vols.): ²1864, Oct/68-Jan/69

Nails sent

1873-1886 folder, case 4

Rents

F-1 1858-1868

F-2 1868-1882

F-3 1882-1891

case 4 folder rents for houses and stores at Centre, 1876

Miscellaneous accounts (small vols.)

case 4 Wood (also shows fines of workers)

²1854, 1855

Furnaces

¹ c.1857

Alewives

² May-June/1906; Apr-May/1907

Corn and Hay

¹ Apr/57

Fire brick

² 1862 (2)

Daybook-type entries, crossed out

³ Jan/58-May/63, Aug/64-Sep/66, Feb/68-Aug/70

Advertising leaflets; clipping on company (1970) folder, case 1

See folder, #5-2 (Vertical file)

Unbound material and material in small vols., in cases

- D-North case 1 Bills, in bundles
1846, 1847, 1850/51, 1852/53, 1853/54, 1854/55, 1855/56, 1857/58,
1858/59, 1859/60 1865/66 (plus letters)
1868/69, 1869/70 *1873/74, 1874/75, 1875/76, 1876/77,
1877/78
*also 2 folders
- D-North case 2 Sundry bills
1854/55 1874/75, 1875/76, 1877/78, 1878/79, 1879/80,
1880/84
Promiscuous bills
to June 1/49
Writs
Insurance policies
1878, 1879, 1880 (3 bundles), plus "loose" items
Sales
1856/57, 1862/63, 1865/66, 1878/79, 1880, 1882/84
Incoming letters
1848/49, 1849/50 1854/55, 1855/56 1859/50, 1861/62,
1863/64, 1864/65-Lazell, Perkins & Co.; 1865/66 (with Bills);
1874, Jan.-May, 2 folders; 1874/75, 1875, Jan.-June; 1875/76,
1876/77, 1878/79, 1880/84
in folders:
Bridgewater Iron Co., 1878
J.K. Wilson, 1942
Biddle Purchasing Co., sampling, 1940-41
- D-North case 3 Accounts current
1845-1849, folder; 1849, 1855/56, 1860/61, 1861/62,
1875/77, 1879/80, 1880/84
Bills of Lading
1853/54, 1854/55, 1856/57, 1858/59, 1865/66
1873/74, 1875/76, 1876/77, 1877/78
Invoices, etc.
folders: 1845-1848, 1846-1847
small vols. Puddlers time books, 1853-72; see pp. 2-3
" " Pilers time books, 1853-1869; see p. 3
folder: Time, 1847-1848
- D-North case 4 small vols.: general time books, 1852-1918; see p. 3
small vols.: orders, purchases, carting, wood, furnaces,
alewives, corn and hay, fire brick, miscellany, listed on pp. 3-4
folders:
Notes, 1893-1901
Consignment, 1845-49
Orders, 1869-85, 1873-78
Nails in stock, 1907-08
Nails made and on hand, 1847-48, 1889-92
Nails sent, 1873-86
Carting, 1847-49

B. TREMONT NAIL NATIONAL REGISTER DISTRICT NOMINATION

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NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORMSEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS**1 NAME**

HISTORIC

Tremont Nail Factory District

AND/OR COMMON

Tremont Nail Factory District

2 LOCATION

STREET & NUMBER

8 Elm Street

__NOT FOR PUBLICATION 12

CITY, TOWN

CONGRESSIONAL DISTRICT

Wareham

__ VICINITY OF

STATE

CODE

COUNTY

CODE

Massachusetts

25

Plymouth

023

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input checked="" type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input checked="" type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE <input type="checkbox"/> MUSEUM
<input type="checkbox"/> BUILDING(S)	<input checked="" type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL <input type="checkbox"/> PARK
<input type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL <input checked="" type="checkbox"/> PRIVATE RESIDENCE
<input type="checkbox"/> SITE	PUBLIC ACQUISITION	ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT <input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT <input type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input checked="" type="checkbox"/> YES: UNRESTRICTED	<input checked="" type="checkbox"/> INDUSTRIAL <input type="checkbox"/> TRANSPORTATION
		<input type="checkbox"/> NO	<input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER:

4 OWNER OF PROPERTY

NAME

Multiple (See continuation sheet.)

STREET & NUMBER

CITY, TOWN

STATE

__ VICINITY OF

5 LOCATION OF LEGAL DESCRIPTIONCOURTHOUSE,
REGISTRY OF DEEDS, ETC.

Registry of Deeds, Plymouth County Courthouse

STREET & NUMBER

Russell Street

CITY, TOWN

STATE

Plymouth

Massachusetts

6 REPRESENTATION IN EXISTING SURVEYSTITLE Inventory of the Historic Assets of the Commonwealth of Mass.;
Historic American Engineering Record; National Register of Historic
DATE 1967; 1974; 1976 Places☒ FEDERAL ☒ STATE ☐ COUNTY ☐ LOCALDEPOSITORY FOR SURVEY RECORDS Massachusetts Historical Commission; Historic American
Engineering Record; National Register of Historic Places

CITY, TOWN

STATE

Boston; Washinton

Mass.; D.C.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 4 PAGE one

Owners

Tremont Nail Company
(James S. Kenyon, Jr., Pres.)
8 Elm Street (P.O. Box 111)
Wareham, Massachusetts 02571

(Factory Complex and houses)

Parker Mills Trust
(James S. Kenyon, Jr.)
8 Elm Street (P.O. Box 111)
Wareham, Massachusetts 02571

(New Factory)

A. D. Makepeace Company
226 Main Street
Wareham, Massachusetts 02571

(Parker Mills Pond)

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input checked="" type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES 1819-present

BUILDER/ARCHITECT Parker Mills and others

STATEMENT OF SIGNIFICANCE

The Tremont Nail Company, the Nation's oldest nail manufacturer, has been an important factor in that industry since early in the 19th century. The firm was founded in 1819 as a cooperative venture by several individuals who formerly had made nails by hand, and its birth closely coincided with the general introduction of nail-making machinery and the shift from the handicraft to the industrial stage of production. From these developments there emerged a new industry which, according to pioneer industrial historian Victor S. Clark, became "one of the most important as well as the most characteristic branches of metal manufacture in America."¹

Throughout much of the 19th century, Tremont, or Parker Mills, as it was sometimes called, was a leader in cut nail production, selling its output both at home and abroad. A Tremont company history claimed that the firm's manufacturing facilities were for a time "the largest and finest in America."² Probably its greatest technological achievement during this period was the development of the case hardened cut-steel nail which it still produces today. According to company president James S. Kenyon, Jr., "these nails can be driven into the hardest wood, into cinder blocks and masonry and fresh cement. Because we heat-treat our nails to harden them, you can drive one of our cut nails through a sheet of steel the same gauge the nail was made from."³

Tremont is the last extant example of the factories which enabled Massachusetts to lead the Nation in nail production in the first 60 years of the 19th century. The State's dominance was due in part to a flourishing iron industry based on the exploitation of bog ore, but even after the discovery of richer varieties of ore led most producers of iron products elsewhere, the nail industry remained in its old home, at least for a time.

(continued)

¹Victor S. Clark, History of Manufactures in the United States, 1607-1860, Vol. I (New York, 1949), 222.

²Tremont Nail Company, Tremont Cut Nails: Centenary Catalogue, 1819-1919 (West Wareham, Mass., 1919).

³Quoted in John H. Ackerman, "Tremont Nail Company: Success In Tradition," The Southeasterner, July 26, 1970, 8.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 8 PAGE one

Even as late as 1860, says Clark, "the great center of this manufacture continued to be Massachusetts," which that year alone "made more than one-third of the country's product."⁴

The Tremont Nail Factory District contains approximately 12.4 acres and consists of an 1848 factory where cut nails are still being manufactured on 19th-century machinery; the Parker Mills Pond that once powered it; a company office building which may date back to 1819; an early storage building, part of which dates back to 1848; a store and carpenter shop, probably of mid-19th-century vintage; a pickling shed and two storage buildings, dating from around the late 19th or early 20th century; and two early 19th-century workers' houses. For the most part, these structures are in good condition, and in a collective sense they constitute a living historical museum where cut nails are being produced much as they were in the 19th century.

History

The origins of nail-making in Wareham, Mass., the home of the Tremont Nail Company, can be traced back to the earliest days of settlement in the 17th century when an overflow of individuals from the Plymouth Colony moved into the area in the hope of finding better farming and fishing opportunities. These pioneers found the soil sandy and poor in the area around Wareham, but they discovered deposits of iron ore in the process of clearing land and draining swamps. Being practical people, they erected smelters to separate the iron from the bog ore and then fashioned it into the implements they needed, including nails.

Eventually almost every home in the Massachusetts bog ore region had a furnace and forge, and a new industry was born. In Wareham, according to local historian Fredrika A. Burrows, "the making of nails became a handicraft, and as the volume of their product increased beyond their needs, an outside market was set up."⁵ Early nail production was a laborious and time consuming
(continued)

⁴Clark, History of Manufactures, 1607-1860, 516.

⁵Fredrika A. Burrows, Cannonballs and Cranberries (Taunton, Mass., 1976).

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 8 PAGE two

process that farmers and fisherman usually reserved for the winter months and nights. First, the body of the nail had to be shaped on an anvil; then the round flat head of the nail had to be made separately; and finally the body and head were attached in a separate process.

Largely due to the efforts of these industrious individuals, Massachusetts took a wide lead in nail production well before the American Revolution. Because of the handicraft nature of the industry and the needs of the rapidly expanding colonies, large quantities of nails and tacks were imported from England as well. As a result, the two wars with Great Britain gave impetus to the search for methods to speed up domestic nail production. The first steps were taken during the Revolution when the hand forging process gave way to one in which nails were cut from iron plates with heavy shears. During the War of 1812 several individuals attempted to develop machines to increase production of these cut nails, but it was not until 1818 that Ezekiel Reed of Bridgewater, Mass., developed the first practical nail cutting device.

In the meantime, individual nailmakers had begun to form cooperative bodies to improve the organization of the industry, purchase machinery, and take advantage of the increased efficiencies created thereby. "The year 1819," says historian Daisy Washburn Lovell, "marks the beginning of the modern organization of the cut-nail industry in Wareham."⁶ In that year Jared and Isaac Pratt and a few other individuals combined their efforts to establish the Wareham Iron Company, the forerunner of today's Tremont Nail Company. In the years that followed, other firms were established in the vicinity of Wareham, and although their principal product was cut nails, these companies produced a wide variety of iron products, including rails, pots, kettles, shovels, and hoops.

During the 1830's and 1840's, the Wareham nail industry underwent rapid expansion because of an infusion of New Bedford and Boston capital. In 1834 the Wareham Iron Company failed, and its manufacturing facilities were taken over by a group of New Bedford businessmen headed by John Avery Parker. Reorganized
(continued)

⁶Daisy Washburn Lovell, Glimpses of Early Wareham (New Bedford, 1970), 87.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 8 PAGE three

as Parker Mills, the firm's plant for a time was the world's largest, and according to Lovell, "Parker Mills nails acquired a reputation that commanded ready sales in the markets of the world."⁷ By 1856 the firm was producing 330 tons of cut nails and spikes annually. Meanwhile, in 1845 a group of Boston capitalists formed the Tremont Iron Company and established what was probably the largest nail-making facility in Wareham. Within 2 years, this firm was manufacturing 2,100 tons of nails annually, a figure that reached 4,707 tons in the late 1850's after the firm had been reorganized as the Tremont Nail Company.

This record of growth occurred despite the fact that the local bog ore industry practically ceased to exist causing nail manufacturers to bring in iron ores from considerable distances, especially from Europe. Even as late as 1860, Massachusetts managed to maintain its lead in nail production, producing more than one-third of the Nation's total output. "This was partly due," says Clark, "to the early localization of the industry in that State, but its continuance," he explains, "was assisted by the popular preference for cut nails of Swedish iron."⁸

In the 1870's the nail industry in Massachusetts received the first of a series of shocks from which it never entirely recovered. First, consumers began increasingly to accept nails made of American iron and steel, giving nail manufacturers in the Nation's iron and steel regions a competitive advantage. More serious, however, was the development in the late 1880's of machinery to cheaply produce steel wire nails, which in effect imposed a death sentence on the flourishing cut nail industry. Cut nail production, which had totaled more than 8.1 million kegs in 1886, dropped to 1.5 million in 1900 and to 740,000 by 1913. At the same time wire nail production rose from 7.2 to 14 million between 1900 and 1913.

Wareham's nail manufacturers attempted to meet these challenges by combining their resources. In 1882 the Bridgewater Iron Company purchased the Parker Mills complex for \$50,000, but operated it only a few years before economic realities forced it to close its doors. In the late 1880's the Tremont Nail Company
(continued)

⁷Ibid., 91.

⁸Clark, History of Manufactures, 1607-1860, 516.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 8 PAGE four

took over Parker Mills, and it was probably around this time that the combined firms developed the case hardened cut-steel nail that became its mainstay. Until around 1920 the company was owned and operated by members of the Tobey family. In the early 1920's they sold it to United Shoe Machinery Corporation which held it until 1927 before selling it to the father of the current owner, James S. Kenyon, Jr. Today Tremont is the Nation's oldest nail manufacturer and is one of only three American firms still producing cut nails and offering them in a variety of shapes and sizes.

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input checked="" type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Tremont Nail Factory District contains approximately 12.4 acres and consists of the 1848 factory building; the pond that once powered its machinery; an early 19th-century office building; an old storage building, a portion of which dates back to 1848; a store and carpenter shop, probably of mid-19th century vintage; a pickling shed and two storage buildings constructed around the turn of the century; and two early 19th-century workers' houses.

When Jared and Isaac Pratt and their friends established Wareham's first nail factory in 1819, they utilized a fulling mill located on the western bank of the Wankinco River. Three years later they added a small rolling mill to make their own iron, and in 1828 they erected a much larger one some distance north of the first factory. Gradually the Wareham Iron Company concentrated all its nail-making and other iron-working activities at this new site. In 1836, two years after John Avery Parker and his associates had taken over the Wareham Iron Company, most of the 1819 factory complex burned. Nail-making continued at the site, however, in a few surviving buildings under the direction of Bartlett Murdock and Sons.

In 1848 Parker and his partners erected a new nail factory on the site of the 1819 plant, actually utilizing the stone foundations of the burned-out building. Known as Parker Mills, it continued to operate under this name long after its merger with the Tremont Nail Company in the late 1880's. Until the late 1920's the Tremont Nail Company included not only of the Parker Mills property but also a plant in West Wareham where it made nail and tack plate. Eventually, however, Tremont shut this plant down, began to purchase its plate from others, and moved its operations to the Parker Mills Complex. In the intervening years, the old West Wareham facility, like the other nail plants in the area, with the exception of Parker Mills, was demolished.

Main Factory Building. This two-story high edifice, which is located on the south side of Elm Street and whose east end abuts the west bank of the Wankinco River, was erected in 1848 by ships' carpenters hired by the New Bedford businessmen who owned the Parker Mills Company. The building's heavy timber frame rests on the same native stone foundations that held the 1819 factory, and its exterior walls are clad with brown wood shingles. The factory is generally rectangular in its configuration with several small, protruding additions at its east, west, and south sides.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 7 PAGE one

The main portion measures approximately 90 by 240 feet, while its only major addition, located at the rear (south), measures approximately 50 by 50 feet. The factory is capped with a ridged, medium-pitched gable roof covered with green composition shingles. A wooden cupola, featuring a weather vane and containing an 1851 cast-iron bell used to call employees to work, graces the roof near its center point. On both its north and south sides, the roof is pierced by single rectangular-shaped brick chimneys. Windows are generally of the six-over-six wood sash variety and are set in rectangular surrounds.

Inside, the factory still looks much as it did in the 19th century. This original appearance is conveyed not only by the walls and ceilings of unfinished lumber and a brick tempering forge but by approximately 60 nail and spike-making machines, many of which are over 100 years old. This machinery is operated by a system of massive overhead shafts with large wooden pulleys and wide canvas belts. Originally, this system was powered by a centrifugal waterwheel, but in the 1920's, it was replaced by electricity. In addition to nail and spike machines, there are devices for slitting metal which appear to be almost as old. Near the west end of the factory are blacksmith and machine shops which keep the machinery in good repair and make replacement parts. Presently the factory's overall condition is very good, and nails continue to be manufactured here almost as they were 100 years ago. Recently, however, officials of the Occupational Safety and Health Administration visited the facility, and it is feared that this agency might require major changes in the plant layout that would destroy its historic character and process.

Parker Mills Pond. This Pond, which is located north of the main factory and which is situated between Elm Street and Mass. Route 28, was created in 1848 when John Avery Parker and his partners built a new dam to replace one constructed many years earlier by Isaac Bump. The dam is presently under Elm Street, and only a small part of the section that is visible appears to be original. From 1848 until sometime in the 1920's, the pond's waters were conducted into the factory's races, which are still visible, to activate a waterwheel which in turn powered all the machinery. Presently, the pond is owned by A. D. Makepeace Company, a local cranberry grower, and it still regulates the flow of water from the dam into the river. The machinery is electrically powered now.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 7 PAGE two

Office Building. This northward-facing, two-story, Federal style edifice is located approximately 150 feet west of the main factory. Its construction date is unknown, but it probably dates back to 1848 if not earlier. The building is of wood frame construction, and it rests on stone foundations over a full basement. Exterior walls are clad in white painted clapboards on its front (north) facade and east and west ends while the rear (south) facade is sheathed in brown wood shingles. Windows are generally of the 12-over-12 and 6-over-6 wood sash variety and are set in rectangular surrounds which feature green-painted wooden shutters. The edifice is capped with an asphalt shingle-covered hipped roof which is pierced by a single brick chimney on its east side. Inside, this building has been extensively altered over the years, and no original features are readily visible. The exterior, however, shows few signs of alteration, and the overall condition of the structure is very good.

Old Storage Building. This 1 1/2-story, L-shaped edifice is situated south of the main factory and its east end abuts the west bank of the Wankinco River. The rear portion, which is now used to house the company owner's antique automobile collection, features heavy timber framing similar to that found in the main factory and was probably constructed in 1848 as well. The later wing, which probably dates from the late 19th century, faces toward the main factory and is currently utilized as a carpenter shop. Both sections have stone foundations; are clad in brown wood shingles; feature six-over-six wood sash windows set in rectangular surrounds; and are capped with asphalt-shingle-covered gable roofs. This building, which is no longer used for nail storage, appears to be in good condition, and soon it may be converted into a museum.

Store. This two-story, frame edifice whose exterior walls are clad in brown wood shingles, is situated on the northern edge of Elm Street directly across from the main factory. It has rectangular-shaped window and door openings; exhibits six-over-six sash type windows; and is capped with a shingle-covered gable roof. Of mid-19th-century vintage, it originally served as a copper shop before being converted into a company store. In recent years, its interior has been restored, including the original wide oak flooring, and presently it houses a small general store catering to the needs of tourists. Its overall condition is very good.

(continued)

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Carpenter Shop. This 1 1/2-story structure is located approximately 30 feet east of the store. Like the store, it is of 19th-century vintage; is of frame construction and sheathed in brown wood shingles; features six-over-six sash type windows set in rectangular surrounds; and is capped with an asphalt-shingle-covered gable roof. For many years, it served as the Parker Mills carpenter shop. Generally in good condition, it now serves as an annex to the store.

Pickling Shed. This 1 1/2-story, turn-of-the-century structure, located a short distance south of the main factory, was utilized until April 1977 for cleaning the rust and scale from sheets of steel before sending them on to the factory to be manufactured into nails. Inside this gable-roofed building, whose exterior walls are covered with composition siding, steel for nails was bathed in vats containing a combination of sulphuric acid, water, and lime. Because of the resultant water pollution, government environmental agencies forced Tremont to desist using this method and adopt a new and safer one. Presently, this edifice stands vacant. It is in fair condition.

Storage Buildings. These two buildings are located directly south and southeast of the pickling shed. Both appear to date from around the turn of the century; stand 1 1/2-stories high; are of frame construction and sheathed in brown wood shingles; and are topped with asphalt-shingle-covered gable roofs. Presently the structures are used for storing and packing nails and appear to be in good condition.

Workers' Houses. Situated approximately 350 feet east of the main factory are two houses, one a single and the other a two-family dwelling, which constitute the last remnants of factory housing. The single-family dwelling, which is the easternmost structure in the district, is a 1 1/2-story frame edifice whose exterior walls are sheathed in brown wood shingles. It features sash type windows in rectangular surrounds and is capped with a steeply pitched asphalt-shingle-covered gable roof which is pierced at its apex by a single brick chimney. The double dwelling is a 2 1/2-story edifice capped with a medium-pitched asphalt-shingle-covered gable roof that is pierced at its apex by two large, rectangular-shaped brick chimneys. Like the single dwelling, it is of frame

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 7 PAGE four

construction; is sheathed in brown wood shingles; and features sash type windows set in rectangular surrounds. Both houses are in good condition and are inhabited by present or former Tremont Nail Company employees.

Other Structures. Included within the boundary of the district are several buildings and structures that are of relatively recent origin and do not contribute to its national significance. In this category are the small, brown-shingle-covered coal shed located between the carpenter shop and store; the fish ladder on the Parker Mills Pond dam; the chemical storage tanks and small shed that are situated between the main factory and the pickling shed and old storage building; and new metal-clad building, situated south of the office building and housing company equipment used to clean rust and scale from steel sheets.

Boundary Justification. The boundary described below contains approximately 12.4 acres and includes the most historically significant sites and structures associated with the history and development of the Tremont Nail Company.

Boundary Description. As indicated in red on the accompanying maps [(1) U.S.G.S. 7.5' Series, Mass., Wareham Quad., 1972; and (2) AASLH Sketch Map, 1978], a line beginning at an unmarked point on the southern edge of the right-of-way of Elm Street at its intersection with the Penn Central Railroad and extending eastward approximately 280 feet along said right-of-way to a point on a line parallel to and 10 feet distant from the exterior plane of the west wall of the store; thence, northward approximately 200 feet along said line to the southern edge of the right-of-way of Cranberry Road (Mass. Route 28); thence, eastward approximately 520 feet along said right-of-way to the point where it intersects with the northern edge of the right-of-way of Elm Street; thence, westward approximately 160 feet along the northern edge of the right-of-way of Elm Street to a point on a line parallel to and 10 feet from the exterior plane of the east wall of the single workers' house; thence, southward approximately 100 feet along said line to a point on a line parallel to and 10 feet distant from the exterior plane of the southeast corner of said house; thence,

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westward approximately 160 feet along said line to a point on a line parallel to and 10 feet distant from the exterior plane of the west wall of the double workers' house; thence, northward approximately 50 feet along said line to the southern edge of the right-of-way of Elm Street; thence, westward approximately 150 feet along said right-of-way to the east end of the Parker Mills dam which is under Elm Street; thence, southward approximately 200 feet along the east end of the dam and the east bank of the Wankinco River to a point opposite the southwest corner of a lot belonging to the Tremont Nail Company; thence, westward approximately 50 feet across the Wankinco River to its west bank; thence, southward approximately 520 feet along the west bank of said river to an unmarked point; thence, westward approximately 400 feet along a stone wall to the eastern edge of the right-of-way of the Penn Central Railroad; thence, northward approximately 800 feet along said right-of-way to the point of beginning.

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CONTINUATION SHEET Tremont Nail ITEM NUMBER 9 PAGE one

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9 MAJOR BIBLIOGRAPHICAL REFERENCES

(See continuation sheet.)

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY ca. 12.4 acres

UTM REFERENCES

A 19 3567920 46253110
ZONE EASTING NORTHING

C 19 3567910 46251900
ZONE EASTING NORTHING

B 19 356890 4624940
ZONE EASTING NORTHING

D 19 356550 4625100
ZONE EASTING NORTHING

VERBAL BOUNDARY DESCRIPTION

(See continuation sheet.)

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
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STATE	CODE	COUNTY	CODE
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11 FORM PREPARED BY

NAME / TITLE

Ralph J. Christian, Historian, Historic Landmarks Project

ORGANIZATION

DATE

American Association for State and Local History June 1978

STREET & NUMBER

TELEPHONE

1400 Eighth Avenue South

615/242-5583

CITY OR TOWN

STATE

Nashville,

Tennessee

37203

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL

STATE

LOCAL

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

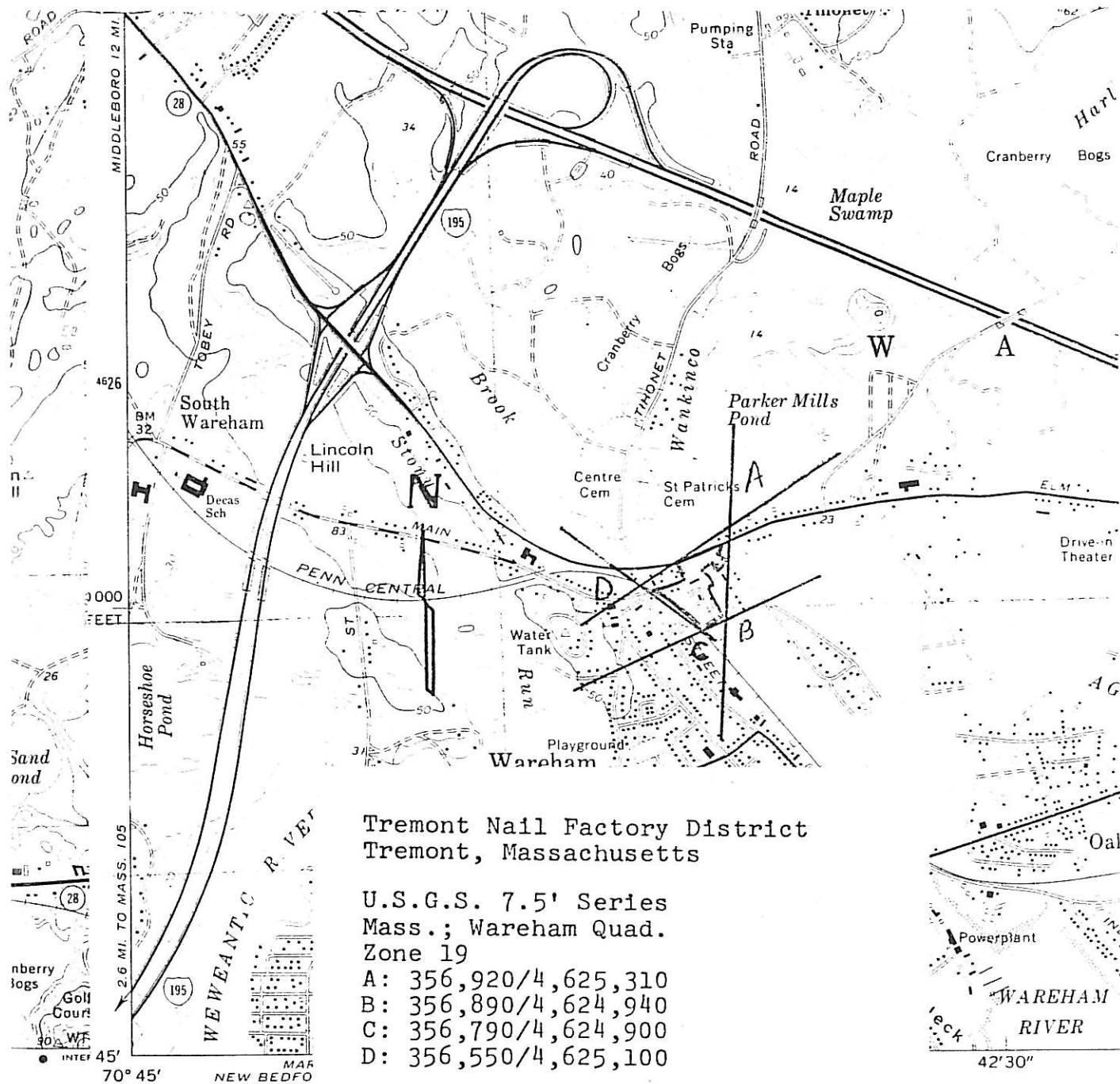
DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER



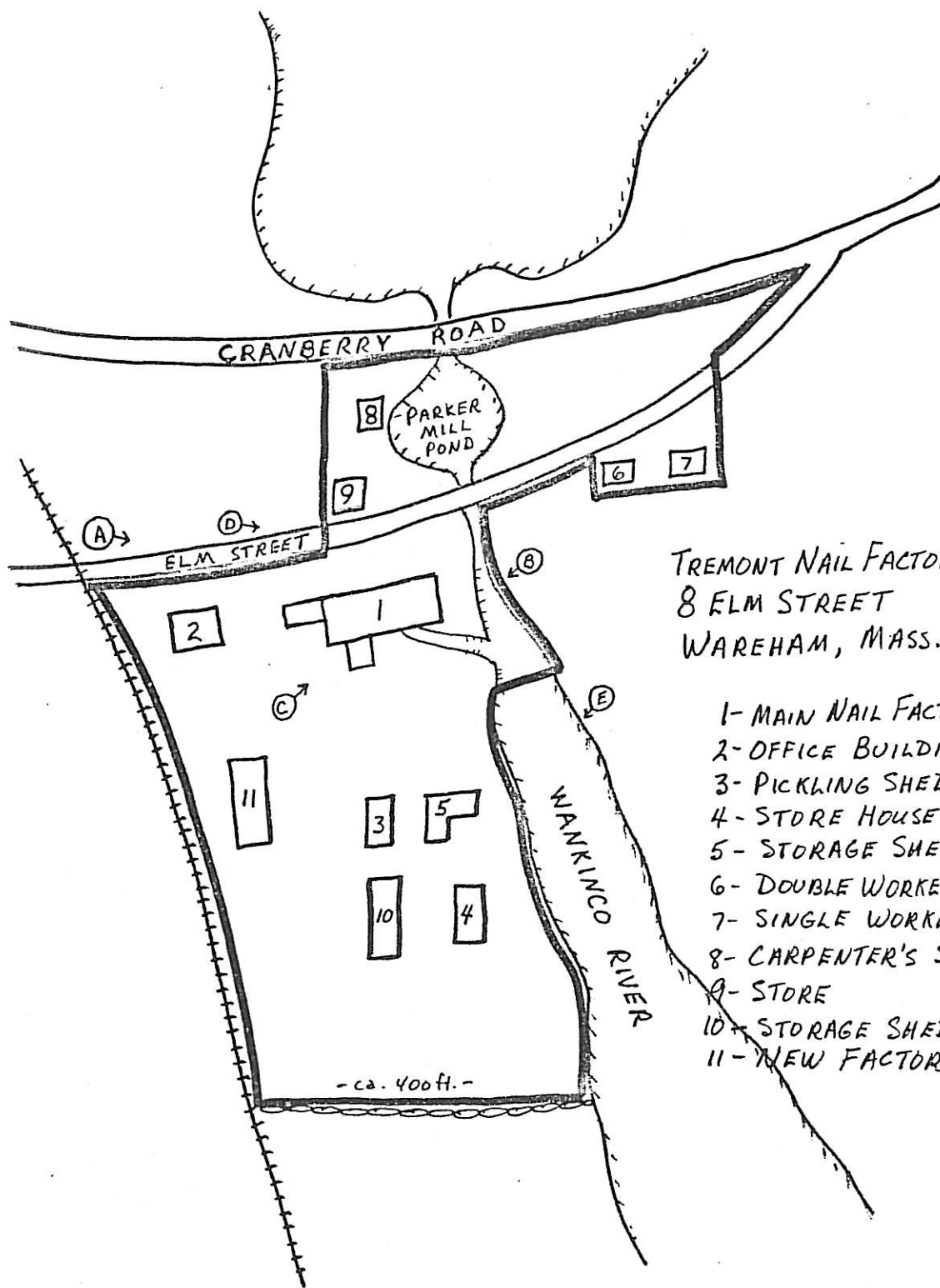
Tremont Nail Factory District Tremont, Massachusetts

U.S.G.S. 7.5' Series
Mass.; Wareham Quad.
Zone 19

A: 356,920/4,625,310
B: 356,890/4,624,940
C: 356,790/4,624,900
D: 356,550/4,625,100

Mapped, edited, and
Control by USGS, USC
Topography by planetary
aerial photographs taken
Selected hydrographic
This information is not intended for navigational purposes
Polyconic projection. 1927 North American datum
10,000-foot grids based on Massachusetts coordinate system,
mainland zone
1000-meter Universal Transverse Mercator grid ticks,
zone 19, shown in blue

UTM GRID AND 1972 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



TREMONT NAIL FACTORY DISTRICT
8 ELM STREET
WAREHAM, MASS.

- 1- MAIN NAIL FACTORY
- 2- OFFICE BUILDING
- 3- PICKLING SHED
- 4- STORE HOUSE
- 5- STORAGE SHED
- 6- DOUBLE WORKERS' HOUSE
- 7- SINGLE WORKERS' HOUSE
- 8- CARPENTER'S SHOP
- A- STORE
- 10- STORAGE SHED
- 11- NEW FACTORY

AASLH SKETCH MAP
by: G. R. Adams
1978 (not to scale)

○ → photo angles

Tremont Nail Factory District
Wareham, Massachusetts

Photo No. 1
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: From northwest, showing west ends
and front (north) facades of office
building and main factory building.



Tremont Nail Factory District
Wareham, Massachusetts

Photo No. 2
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: From southeast, showing east end
and rear (south) facade of main
factory building.

Tremont Nail Factory District
Wareham, Massachusetts

Photo No. 3
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: From southwest, showing west end
and rear (south) facade of main
factory building.



Tremont Nail Factory District
Wareham, Massachusetts

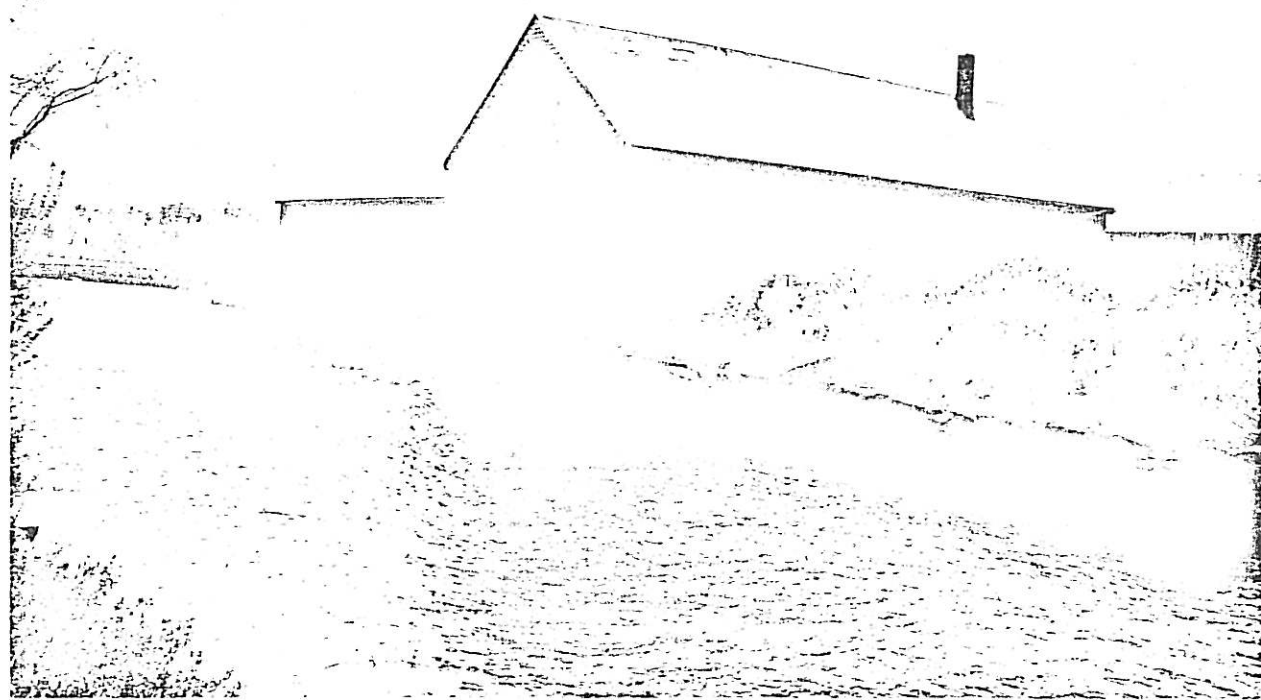
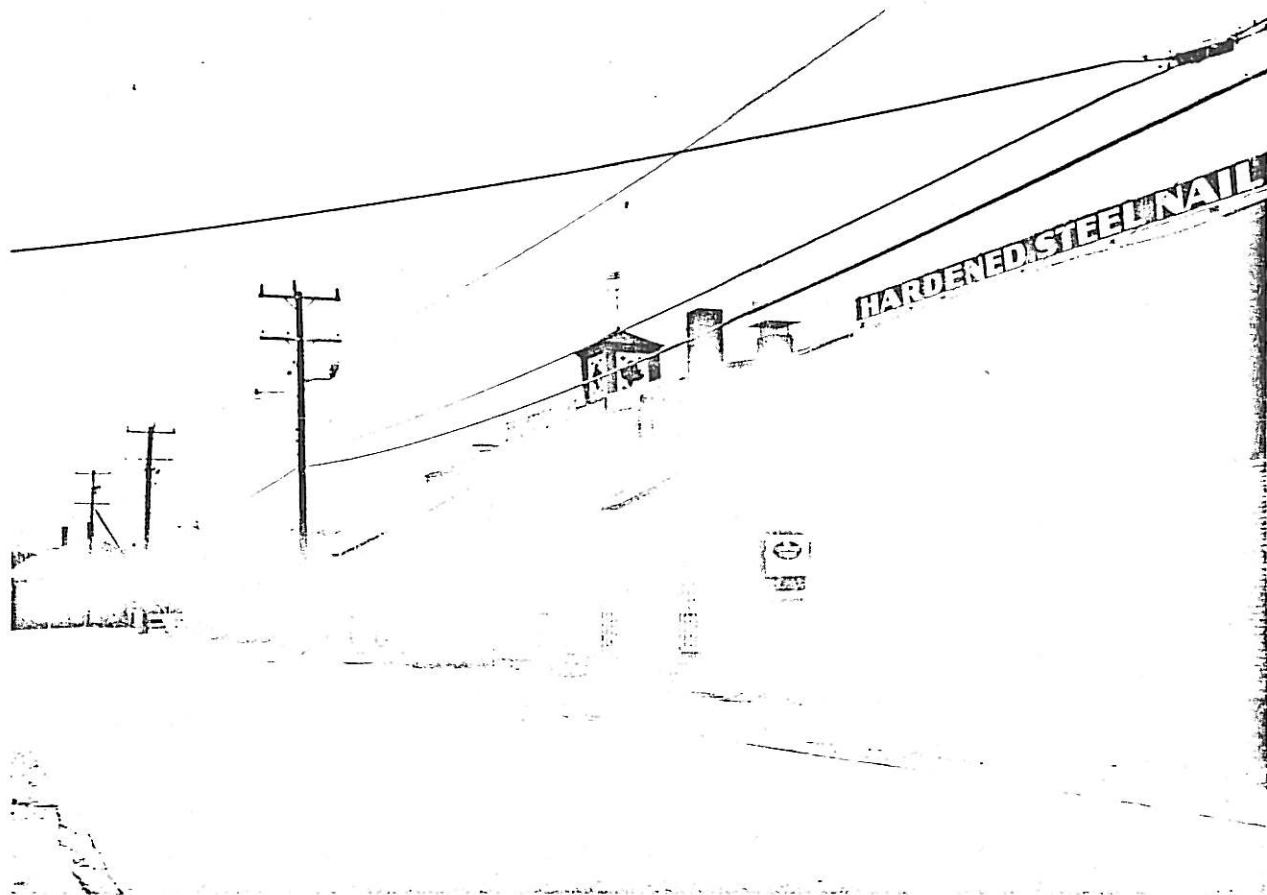
Photo No. 4
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: From northwest, showing west ends
and front (north) facades of main
factory building and double workers'
house.

Tremont Nail Factory District
Wareham, Massachusetts

Photo No. 5
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: From northeast along the Wankinco
River, showing front (north) facade
and east end of old storage building.



Tremont Nail Factory District
Wareham, Massachusetts

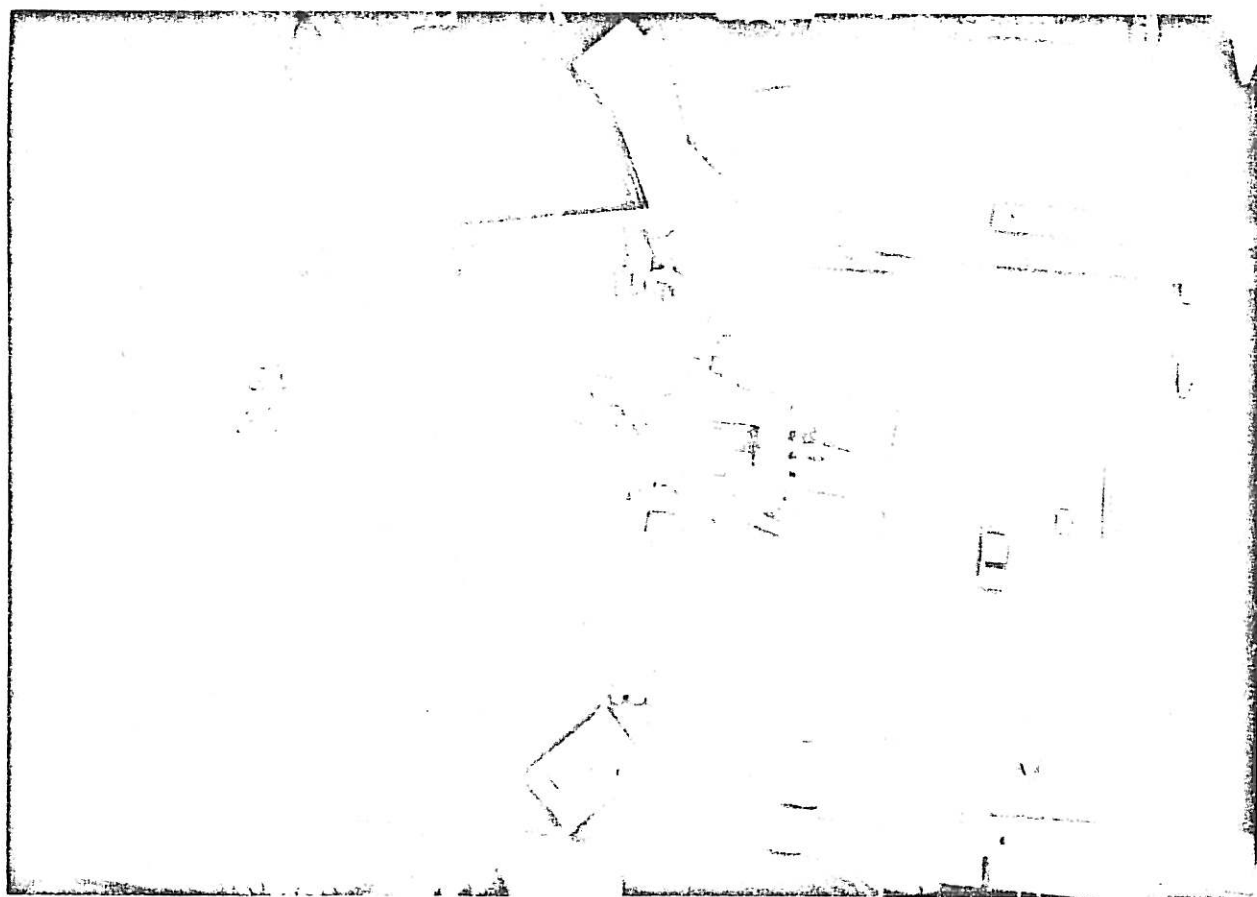
Photo No. 6
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: Metal slitting machinery in
main factory building.

Tremont Nail Factory District
Wareham, Massachusetts

Photo No. 7
By: Ralph J. Christian, AASLH
Negative at: HSS, HCRS
Date: May, 1978

View: Nail making machine in main
factory building.



C. COASTAL ENGINEERING STRUCTURAL ASSESSMENT REPORT

COASTAL ENGINEERING COMPANY, INC.

260 Cranberry Highway (Rte. 6A), Orleans, MA 02653

www.CoastalEngineeringCompany.com

Orleans 508-255-6511

■ Provincetown 508-487-9600

■ Hyannis 508-778-9600

■ Fax 508-255-6700

May 11, 2009

C17167.00

Menders, Torrey & Spencer Inc.
Attn.: Lynn Smiledge, Preservation Planner
123 North Washington Street
Boston, MA 02114

Re: Tremont Nail Company Complex
Summary of Buildings Structural Evaluations
and Civil Engineering Feasibility Assessment

Dear Ms. Smiledge:

Pursuant to your request, attached please find three copies of the report on our investigation, evaluation and assessment of the existing buildings located at the Tremont Nail Company Complex in Wareham.

The Summary of Buildings Structural Evaluations report includes a general background and individual descriptive summaries for each of the eight buildings and their associated parts. Photographic Documentation can be found in Appendix A which is followed by a Recommendation Repair Summary (Appendix B).

The Civil Engineering Feasibility Assessment includes the review of applicable local, state, and federal regulatory requirements that would apply to the redevelopment of the property. A USGS quadrangle Locus Map, a Sketch Plan Showing Existing Conditions and a Flood Insurance Rate Map (FIRM) make up the Appendices.

We trust that the report suits your needs at this time. Please do not hesitate to contact us if you require any additional information regarding this matter, or if you would like our help in any future engineering consultations.

Very truly yours,

COASTAL ENGINEERING CO., INC.



John A. Bologna, P.E.
President and CEO

Enclosures

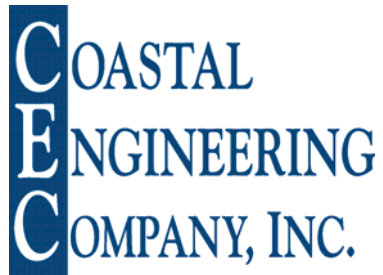
D:\DOC\C17100\17167\Structural Bldg Evaluation Report\Cover Letter Summary Report-050809.doc

Project No. C17167.00

**TREMONT NAIL COMPANY COMPLEX
SUMMARY OF BUILDINGS STRUCTURAL EVALUATIONS**

May 11, 2009

Prepared by:



260 Cranberry Highway
Orleans, MA 02653

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TREMONT NAIL COMPANY COMPLEX

SUMMARY OF BUILDINGS STRUCTURAL EVALUATIONS

GENERAL BACKGROUND

Coastal Engineering Company (CEC) has performed two site visits (December 5th and 8th, 2008) in order to review the existing structures which comprise the former Tremont Nail Company site. The entire Tremont Nail site is within the Tremont Nail Factory District and is listed in the National Registry of Historic Places. The purpose of this evaluation is to provide the town and its historic architectural consultant with a general overview of the current structural conditions of the buildings and to give general recommendations for improvements. Our investigation was limited to structural elements and systems that were exposed to view. CEC did not investigate for building technology issues that are unrelated to the foundations as this is to be provided by the historic architectural consultant. All of the building investigations were made by visual observation only, using ladders, lights, and some hand tools, with approximate dimensions acquired by field tape measurements. All code references in this report refer to the 7th Edition Massachusetts State Commercial Building Code. Based upon the FEMA FIRM map 2552230008C updated 08/04/1987 the majority of the site is located in a flood hazard zone A15 with a flood elevation of 15.0'. Because the Tremont Nail Factory is an historic building listed with the National Registry of Historic Places special considerations order the provisions 780 CMR 3409.0 for Historic Buildings

To help determine the urgency of the repairs required/noted, the following rating system has been implemented

- (A) – Recommended to be repaired prior to the building occupancy
- (B) – Should be repaired within 1 – 2 years or prior to the building occupancy (whichever occurs first)
- (C) – Should be repaired within 6-12 months or prior to the building occupancy (whichever occurs first)
- (D) – Should be repaired within 3-6 months or prior to the building occupancy (whichever occurs first)
- (E) – Should be repaired immediately

The above rating is generalized, while it is recommended that all repairs should be done in a timely manner, some of the repairs required should be prioritized over others.

Accordingly, the following is a summary of observations and comments noted during the investigation. Photographic documentation is included and cross referenced to each building. Numbers in () refer to pictures in Appendices.

1. OFFICE BUILDING (“A” and “B”)

The office building is comprised of two portions “A” which is the original portion of the building consisting of two (2) floors and a full basement, and “B” which is a single story addition with a full basement.

Area “A”- The Original Portion

- The roof in Section “A” is a standard hip roof design, with 3”x6” full size rafters. The hip is formed with the rafters framing into a hip beam that is supported on the exterior wall and a post at the peak of the roof. It was observed that some of the rafters stopped short of the hip beam and will need to be reinforced and proper connections placed (#1)(D). The rafters in the middle of the roof frame into a ridge board that is attached to the support post for the hip beam (#2).
- The roof sheathing is 1x wood board planking with plywood atop the planking. The roof rafters and sheathing appear to be in good condition with little to no deterioration. Where the chimney penetrates the roof sheathing, an additional 2x rafter was placed next to the chimney, however, instead of being supported at the ridge, a 2x4 post was placed under the rafter and bears on the ceiling joist below (#3). A new rafter should be placed next to the chimney, which spans from the top wall plate to the ridge board and full depth blocking should be placed between the rafters on either side of the chimney (C).
- The ceiling in this portion of the building consisted of 6”x6” timber framing with 1X boards supporting the plaster and lathe ceiling. With the exception of a steel connection at the hip beam post to the transfer beam connection, the connections at the ceiling and attic level are made with mortise and tenon jointing with 3/4” to 1” diameter wood dowels. All connections at this level should be reinforced with properly sized joist hangers or other mechanical means (C).
- A considerable amount of debris was observed in the attic area, which should be cleaned up and properly disposed of to reduce the load in the attic (B).

- Although framing for the second floor could not be viewed due to the covering of the building finishes, it was observed that there is a significant slope in the floor which is at the lowest point under at the intersection of the interior partition walls (#5). Supplemental hanger tie rods, consisting of a ¾" diameter steel rod and a ¾" square rod is attached to a heavy timber beam in the second floor ceiling framing. These rods extend through to the second floor yet do not appear to extend to the first floor. (#4). These rods did not appear to support any load, as the rods were easily movable in all directions by hand. The exterior walls on the 2nd floor were also checked for plumb, it was noted that these walls appear to be leaning inward, which indicates that the structure is starting to collapse. It is suggested that that an additional evaluation be performed to determine the framing, and the framing conditions of the second floor (E). In order for this evaluation to be completed, removal of finishes would be required. It is likely that temporary jacking and shoring would be required to stabilize the structure.
- There was not much viewable in the first floor level as finishes were placed throughout. The one noticeable item however, is that a portion of the subfloor at the bottom of the stairs to the 2nd floor was deteriorated and should be replaced (A).
- The first floor framing consisted of heavy timber beams that have notching throughout. These beams appear to have been reused from another location. Due to the notching the beams have a reduced load capacity, and will therefore likely need to be reinforced (C). The joists varied in sizes and were attached to the beams and sills with either a cleat or a mortise and tenon connection. These connections should be reinforced with joist hangers or other acceptable mechanical connections (#11) (B). The beams are supported on steel columns, which are not mechanically attached to either the beams or the foundation/slab. Some of the columns use a wood column "capital" atop the steel cap plate, which is not fastened to the beams (#9) The bottom of the columns and column baseplates have significant surface rust likely due to the high humidity/moisture in the building (10). The columns should be replaced with new hot-dipped galvanized structural steel columns to provide longer service life of the structure and be properly secured to the foundation and beams (B). It is also likely new foundations are needed under the columns as the columns are most likely bearing on the slab on grade and there is no evidence of any footing below (B).
- Building "A" has a stone and mortar foundation on three sides with a walk out basement on the fourth side. The foundation at the walk-out side is a concrete foundation or leveling pad that is in good condition, though the depth and size of the footing (if any) could not be determined. This foundation may need to be underpinned if the footing size or depth is inadequate (B).
- There was vegetation growing through the stud walls at the walkout basement which may cause increased deterioration to the structure and damage mechanical and electrical components (#8). The vegetation should be removed from the wall and cut back away from the building at this area (D).
- The stone foundation appeared to be in good shape, although there appeared to be significant signs of long term water seepage through the foundation. The water seepage is so extensive that a drainage trough was placed in the slab (#6, #7). While on site, CEC noted continuous water movement through the trough. The water movement in the trough was significant enough, that the slabs next to the trough are being undermined (#7). To reduce the amount of water penetrating the foundation a waterproof coating should be placed on the inside face of the foundation wall (A). This will likely increase the lateral loading on the wall, and as such further analysis would be required. If the wall needs to be reinforced due to the increased loading, a new steel reinforced concrete scab wall placed inset of the existing stone wall would be the simplest augmentation. Another option is to place drainage around the building and pipe the water through the building underneath the basement floor. If the foundation is waterproofed than the trough in the slab used to divert water can be properly filled, along with the undermined portion of the slab (A).

Area "B" – The Addition

- The roof in area "B" is a standard hip roof with 2x6 rafters up to a hip board, with the middle of the roof having 2x6 rafters up to a ridge board. The roof sheathing consists of plywood sheathing with staggered joints fastened to the rafters (#12). The roof appears to be in good shape with no major structural retrofit required.
- The first floor was covered with finishes so the wall framing could not be observed. The first floor framing consisted of 2x8 joists bearing on a 2x pressure treated sill fastened to the cast-in-place concrete foundation wall and a W8 steel beam. The steel beam is supported in beam pockets within the foundation wall and with steel columns throughout the length of the building. The steel columns are buried under the slab and likely bears on a spread footing.
- The slab-on-grade in the basement appeared to be in good condition with little to no cracking observed.
- At the transition between the old and the new portions of the building, the stone foundation from the original building "A" protrudes slightly into the addition. CMU blocks have been placed to help support the existing sill

from the old portion along with some steel columns, as the sill supports the floor joists in the original portion of the building (#14).

- The slab in the new portion of the building is slightly higher than the slab in the original portion; likely due to ground water issues (#13). This area will require further investigation.

With the above noted repairs and retrofits, this building appears to be salvageable for reuse, provided there is not significant addition, construction or change in use. Further evaluation will be required if the building use were to change.

2. STEEL BUILDING

The steel building is one of the newest buildings in the complex, and as such is in relatively good condition, however there were some noted deficiencies that need to be addressed.

- The main columns in the steel building appear to be bearing on the concrete pilaster and partially on the concrete slab-on-grade (#17). This may cause the concrete to crack or yield. It is recommended that monitoring of the column pilasters be implemented to determine if any concrete damage/failure is occurring. This will reduce the likelihood of major foundation damage (E).
- Neither the main columns nor the center columns had any leveling grout placed between the column base and the foundation resulting in the baseplates not fully bearing on the foundation (#17). Injecting grout between the base plates and the foundation (C) should resolve the leveling.
- Several of the lateral cross bracing cables were noticed to have been cut, thus reducing the lateral capacity of the building (#17, #18, and #20). These cross bracing cables should be repaired to ensure the lateral stability of the structure. Optional structural bracing could be designed if there are access or functional issues with the original system (E).
- The center columns in the building are fastened to the foundation with 2 bolts, which appears to be the design intent, however, the base plates at these columns are bending which may pull the anchor bolts out of the concrete and cause damage to the footings. It is recommended that the base plates be reinforced or stiffened with gusset plates (C).
- The slab on grade in the building has some minor temperature and shrinkage cracking, normal for this type of construction. These cracks should be properly sealed to prevent contaminants from penetrating into the concrete (C).
- There is an abandoned housekeeping pad on the south west side of the building. It appears that the slab was attempted to be removed, but was never completed (#19). Consideration for full removal of the housekeeping pad should be reviewed as this is a potential tripping hazard (B).

Overall, the building appears to be structurally sound with the implementation of the above mentioned repair items recommended.

3. RESTROOM BUILDING

The restroom building is located next to the historic factory building and is a wood framed building with a cast in place concrete slab on grade/foundations. The exterior walls were covered with wood shingle siding and the interior with thin plywood so both the wall framing and exterior sheathing could not be observed. However, based on the framing observed in the attic, the walls are likely to be conventional stick frame construction.

- The concrete floors in the men's room appear to be in good condition with little to no cracking or deterioration observed.
- The ladies room has a built up wood floor, likely due to later modifications made after the original construction of the building (#22).
- The roof framing consists of 2x6 roof rafters butted against each other and bearing on the exterior wall. The roof rafters do not have any visible mechanical connection to the top wall plate. Properly sized metal uplift ties should be provided at all rafters (#21) (C).
- The majority of the building appears to have the code minimum 8" clearance between the finish grade and the sill. However, on the southwest side of the building, the sill is in contact with the ground. It is recommended that the ground be re-graded to shed water away from the building.

- Connection of the building to the foundation was not observed due to the limited access. Exploratory demolition is required to determine the condition of the foundation anchorage. Proper anchorage with suitable mechanical anchors will be required if there is no connection of the building to the foundation.

4. PICKLING BUILDING

The pickling building is located southeast of the factory building and was originally used to pickle steel after the manufacturing process. This building is in the worst shape of all the buildings on the site, which may be partially due to the toxic and corrosive chemicals used in the pickling process.

- The foundation consists of unreinforced 8" CMU blocks, with the top of the foundation at grade level. While it could not be determined as to the depth of the foundation and the footing (if any), it likely does not meet current code requirements, which is four feet below grade.
- The sill for the building is a 3"x6" timber bearing atop the CMU foundation wall, without any attachment to the foundation (#24). The sill is in poor condition with considerable deterioration and rotation, up to approximately 30 degrees (#25).
- The building framing appears to be originally post and beam with later augmentations resulting in various framing systems. The wall framing appears to be in fair condition with some deterioration noted at the bottom of the wall studs and posts.
- The exterior sheathing is 1x board planking and appears to be fastened to the posts and stud in-fill. There does not appear to be a viable lateral support system, which raises questions about the building's lateral stability. It may be necessary to install new plywood sheathing on the interior face of the studs and posts to obtain adequate lateral resistance.
- The roof is comprised of 3"x6" rafters with a 1x-ridge board. Heavy timber beams are located at the top wall plate at some locations. There was an attempt to turn some rafters into trusses, which only provides limited extra load capacity.
- At the front part of the building, there are 3 (three) steel tension ties, along with a fourth tension tie located where the CMU building abuts the pickling building (#26, #27). The ties appear to be an attempt to either prevent the wall from laterally displacing due to the gravity loads from the roof system. The ties appear to be functioning, however, the top wall plate is undersized resulting in excessive horizontal deflection at the top of the wall between the tie locations (#23).

Due to the extensive deterioration and overall poor condition of this building, this building is not salvageable. The best option would be to demolish the building and rebuild with the new materials to match the dimensions and appearance of the existing building. If the goal is to save the building, the sills, foundation, roof framing and walls would need to be extensively reinforced or replaced to make the building structurally sound (D)

5. PACKAGING BUILDING

The packaging building is located just southeast of the pickling building, and appears to be in relatively fair condition.

- The foundation consists of 8" grouted CMU blocks.
- The foundation wall is at a constant elevation with grade varying up to 2' around the building. At the high point of the grade, the wood sill plate is approximately even with the ground and at the low grade approximately 3 courses of CMU are visible. Due to the change in the grade elevation there is standing water next to the foundation in some areas which may lead to increasing foundation deterioration (#29). Regrading of the surrounding land should be considered to obtain proper grade clearance and to achieve positive drainage away from the building (B). The sills may also need to be replaced.
- The inside is a slab on grade which has a ramp that creates transition between two different elevations. The slab appears to be in good condition with some temperature and shrinkage cracking observed. These cracks should be properly sealed to prevent contaminants from further damaging the concrete (B).
- While most of the building had some type of wall covering, a small portion at the north side of the building was exposed to view. In this area the wall framing was observed to be 2x6 at 24" o.c. The wall studs appeared to line up with the roof trusses above, which allows for a direct load path of the roof framing to the foundation. A few of

the studs are attached to the sill with a steel angle. It is unknown why some studs are attached to the sill with a steel angle while the majority of the studs are not (#31).

- There did not appear to be any mechanical connection of the sill to the foundation. Adequately sized adhesive or mechanical anchors shall be placed to resist the lateral loads applied to the building (C).
- The roof framing consisted of wood roof trusses with bolted connections all around (#32). The trusses did not show any signs of distress or failure, however a structural load analysis must be completed in order to determine the adequacy of the trusses, their connections and their respective load carrying capacity (C).
- The roof trusses were attached to the stud walls with 2x diagonal uplift ties at every 4th stud on one side of the building (#30).
- On the other side of the building the trusses were attached to the walls with 1x diagonal uplift ties at every truss. The uplift ties appeared to be at an approximate 60 degree angle and attached to the wall studs and the truss top chord with a (1)-1/4" diameter thru-bolt.
- In one portion of the building the ceiling was raised into the attic area and when this was done, the bottom chords of the trusses in that area were cut. This effectively eliminates the truss and creates an untied rafter system at this location. While a single 2x6 rafter is not adequate for a roof rafter at that span the added truss action remaining appears to be adequately supporting the roof for the time, though further analysis would be needed (C).
- The top wall plate is a (2)-2x6, which appears to adequately resist the lateral thrust from the roof gravity loads in the area with the discontinuous bottom chord.

Overall the building appears to be in fair condition, with structural repairs required to make the building structurally sound.

6. SHED

The shed is located southeast of the packaging building and is approximately 18'-0" wide by 40'-0" long.

- The shed is supported on a series of non reinforced CMU piers, with some piers having clay brick on top to obtain the proper elevation. While it could not be determined, it is likely that there is no footing under the CMU piers, or that proper frost protection is provided (#34, #35).
- The CMU piers are supporting the sills and main support beams, these members do not appear to be properly secured to the piers (#35). Due to the condition of the foundation and lack of attachment of the building to the CMU piers it is recommended that the existing foundation be replaced (B). It is recommended that steel reinforced concrete sonotubes with "Bigfoot" footings be used for the new foundation, placed with proper frost protection. When the new foundation is placed, proper attachment of the building to the foundation shall be provided.
- The floor joists are 2x full dressed lumber that appears to be in good condition and have adequate strength for the current storage use. The flooring in the shed is 2x boards which have considerable deterioration at the ends, though appear to be sound in the middle, the deteriorated floor boards should be replaced (B).
- The walls are constructed of 2x4 studs at 3' to 5' o.c. and do not align with the roof rafters. Additional wall studs should be placed to align with the rafters (B).
- The building obtains all the lateral stiffness from the 1x vertical exterior board sheathing which is likely inadequate to resist the applied lateral forces per code and appears to have a fair amount of deterioration. To obtain the proper lateral stiffness properly sized plywood sheathing should be placed on the inside face of the studs, with proper nail sizing and spacing (B).
- The roof system is 2x6 rafters at 3'-0" o.c. and 2x4 roof ties at the top wall plate elevation at each rafter. The roof ties are supported at mid span with a 1x-board, hanging from the roof peak. The capacity of the roof system is questionable and should be properly reinforced (36) (C).

Overall the building is in fair to poor condition, however, is salvageable with the above mentioned recommended repairs.

7. FREIGHT BUILDING ("A" and "B")

Area "A":

The freight building is comprised of the original portion "A" and a later addition "B".

- The original portion of the building, "A", is supported on a stone rubble foundation that has hydrostatic pressure applied from the outside, as the foundation is also acting as a bulkhead for the flume at the site. This stone foundation appears to be in fair condition with obvious water staining and loose mortar and stones observed throughout (#52). Based on observation made at low tide, the portion of the foundation, which is below the water line the majority of the time, is loose laid and is in poor condition. This wall would require extensive work to repair the stone foundation. Alternately, this foundation would be replaced with a cast in place concrete foundation wall and be faced with a salvaged stone veneer to replicate the look of the stone foundation (B).
- The stone foundation on the inland side of the building could not be viewed as the existing grade was at the sill level. The sill in "A" could only be viewed in limited areas due to the floor level being higher than the sill, and debris between the edge of the floor and the wall. In the areas observed, the sills appeared to be in fair to poor condition with significant deterioration.
- There were also no visible connections of the sill to the foundation. Based on the condition of the sill in the areas observed it is likely that the sill around the perimeter of the building will need to be fully replaced with proper connection of the sill to the foundation (C).
- The current floor elevation has been raised from when the building was originally built. Based on the height of the original doors and the new slab elevation it is likely that the floor was raised when shipping changed from boat to train/trucks. When this was done, the door facing the river became unusable (though still present), and new doors on the land side of the building were placed at the approximate height of a rail car bed. Later a ramp was placed at one of the loading doors to be at approximately the height of a tractor-trailer. To raise the height of the floor, stone boulders were placed around the inside perimeter of the building. The area within the stone boulders were then filled in with soil and an approximate 6" concrete slab on grade was placed on top.
- It appears that two slabs were placed; one for the storage area and one for the usable aisle. The slabs appeared to be in good condition overall with the exception of the southwest corner of the slab, which has a significant downward slope. The downward slope appears to have been caused for two reasons; poor original construction with that portion of the building not being fully filled in, and some settlement of the slab. If the desire is to level out the floor slab, removal of the existing floor slab and boulders is required. A new foundation wall would be placed with compacted structural fill and crushed stone placed inside the foundation wall and lastly, the new slab could be placed level with the slab in the rest of the building (B).
- The walls in the original portion of the building are of post and beam construction with some locations having 2x6 stud in fill and a truss atop each post (#45). The top wall plate is below the truss elevation, therefore the ends of the rafters are picked up on a 3"x5" beam laid on the flat spanning between the trusses with very limited bearing area (less than 2") for the rafters (#46). The beam that supports the end of the rafters is likely overstressed and will need to be reinforced and provide proper bearing conditions (C).
- The posts appear to be in fair condition, although have excessive notching for the mortise and tenon connections, which reduces the load capacity of the member.
- The trusses are attached to the posts with diagonal braces that are mortised and tenoned together. Some of the diagonal bracing has been removed, primarily on the south side of the building (#37). The trusses should have either the diagonal braces replaced or tie down straps placed from the truss to the post where the diagonal braces have been removed (C).
- At the locations where posts have been replaced, new diagonal members were placed that are nailed into the sides of the truss and post. Some of the posts appear to have been replaced with smaller posts and in some cases the posts were cut short with shims placed between the top of the post and the truss. These posts should be replaced with properly sized full height posts and diagonal bracing (#41, #42) (C).
- The trusses are in good to fair condition with some minor deterioration and apparent powder post beetle damage. While it could not be determined, it does not appear that the insect damage is current.
- The trusses have a king post with two diagonal members attached at the lower portion of the king post. The upper portion of the trusses is laterally braced to the gable wall with a timber frame type bracing (#39). However the lower chord of the truss has had the lateral bracing removed, it is likely that this was done upon the rising of the floor level to obtain more storage capacity.
- The lower chord lateral bracing should be replaced as it prevents the trusses from buckling and rotation and will help to resist the lateral loads applied to the building (#38) (C).
- The truss members are fastened together with mortise and tenon jointing, though a few trusses have a metal bracket used to connect the king post to the lower chord (#44).
- The roof framing is a rafter and purlin system with the rafter mortised and tenoned to the purlins and the purlins mortised and tenoned to the trusses (#40). The purlins are located at approximately third points of the trusses, which places some extra bending in the top chord of the trusses, as there are no truss chords at these locations. While the trusses appear to be in good condition, they should be analyzed for overall capacity (B).

- The purlins span between the trusses and will likely need to be reinforced as they appear to be undersized. New connections will also be required (C).
- The roof and wall sheathing is 1x board planking attached to the rafters and posts, this type of sheathing provides limited lateral capacity of the building, and will likely require properly sized plywood and sheathing overlay to strengthen the existing building (C).
- On the river side of the building by the addition, vegetation has grown through the wall sheathing which can lead to increased deterioration and damage to mechanical and electrical components. (#43) The vegetation should be removed from the building as well as from next to the building (C).

Area “B”:

The new portion of the building, “B”, is of similar construction to the original portion of the building (“A”), with a few differences.

- The floor in this area has been raised similarly to the floor in the original portion of the building, however, does not show any signs of deterioration (#50). Some consideration should be made for the complete removal of the existing slab. This would simplify the sill replacement and allow for a new cast in place foundation to be placed inset of the existing foundation. A new slab on grade can then be placed atop structural filled at the desired elevation.(A)
- The walls are 2x6 at approximately 24” o.c. with a 6x6 top plate all bearing on a heavy timber sill that appears to be in poor condition. Like the original portion of the building (“A”) the sill around the perimeter of the building will need to be replaced (C).
- The roof framing is a rafter and purlin system, in which the purlins frame directly into timber frames. The roof and wall framing in this area of the building appear to be in good condition, with little deterioration observed. The roof timber frames and rafters bear on the bottom chord of the gable end truss of the original building (“A”) where the new building intersects with the original building (#47). There is an 8”x8” beam spanning 15’ between supports with the timber frames bearing at the support location and mid span of the beam. This beam is notched significantly (approximately 4”), thus reducing the load bearing capacity of the beam, and as such will likely need to be properly reinforced (C). The overall roof system in fact appears to be undersized and will likely need to be reinforced (C).
- The north east gable wall has new 1x wood board sheathing between the existing 1x board sheathing (#48). It is unknown when or why the board sheathing was replaced in the manner it was, however, as noted above provides limited lateral capacity and properly sized plywood sheathing and nailing should be placed to provide laterally stability to the building (C).
- The chimney for the wood burning stove in the office area is in relatively good condition, through the top third appears to need repointing, and some brick units replaced (#51) (B).

The building appears to be in fair condition, and with the above recommended repairs, can be salvaged.

8. TREMONT NAIL FACTORY (“A”, “B”, “C”, and “D”)

For the purpose of this report, the factory building was divided into 4 areas in order to easily identify the various areas of the building. These areas are as follows: “Area A” contains the forge shop, “Area B” contains the work shop, the welders shop, and the grinding room, Note that this area contains two separate additions. “Area C” is the shed roof addition area, and “Area D” is the main factory building. (Refer to the key plan for exact locations.)

General:

Throughout the main factory building the finish slab on grade height varies considerably between additions and within additions. The slabs were likely placed as to minimize water infiltration and to provide adequate space for specific equipment and functioning of the factory (#105). The building is heavy timber framing with structural steel augmentation placed to reinforce the building when it operated as a factory. In general the following conditions were observed:

- The main factory area and the forge area were very damp during the time of inspections with puddles throughout, some up to 3” deep. This is partly due to the water infiltration through the foundation walls and the water culverts underneath the building. Around the majority of the rear and south west side of the building there is a trench which butts against the concrete foundation of the building. This trench appears to have been installed to divert

water away from the building. A comprehensive de-watering plan should be considered to deal with site water management issues throughout the building (#65).

- The stone foundation will require re-grouting with hydraulic cement and the application of a properly designed water proofing system.
- Waterproofing the walls will likely increase the lateral forces on the foundation wall, and as such a full analysis of the wall would be required. This analysis will likely result in the need to reinforce the existing wall with an inset cast-in-place concrete wall or to buttress the existing stone foundation wall.
- There are two bridges that connect the factory over the culvert exit and to the land by the pickling building. One of the bridges is a concrete bridge likely used to move the manufactured nails out of the factory. This bridge is in poor condition and should be removed or replaced (#62) (D). The second bridge is a wooden footbridge, likely placed to easily allow the movement of workers to and from the factory. This bridge is in poor condition as well, with deteriorated members and failed railings (#63). This bridge is unsafe and should either be removed or replaced (D).
- Many of the building areas have some type of structural modifications, many of which seemed randomly placed. It is likely that they were placed to allow for the proper operation of the existing and/or replacement of new equipment.

Area "A":

The forge shop is located at the northwest end of the factory and has high grade on one side, sloping down to a lower grade on the two adjacent sides, and walk-out grade at the factory floor.

- On the high grade side of the forge, the foundation is built with five to seven foot stone rubble, 5" of cement and 2'-10" of clay masonry, which extends approximately 10" above the finish grade (#69).
- The roadway (Elm Street) is within two feet of the building and has a potential for vehicles to pull up next to the building/foundation wall. This places extra lateral surcharge loading on to the foundation wall which needs to be analyzed to ensure the wall has adequate capacity (#58)(C). A heavy timber wood sill is atop the clay masonry and the roof rafters bear upon it.
- The sill did not appear to be fastened to the foundation (#70). Proper attachment of the sill to the foundation shall be provided with the use of adhesive or mechanical anchors (C).
- At the low grade sides of the building a heavy timber sill bears atop a concrete foundation with no visible connections observed. Properly sized attachment of the sill to the foundation shall be provided with adhesive or mechanical anchors (C).
- The wall on the low grade side is a 2x4 stud wall with studs located directly under the roof rafters (#71). The wall sheathing is 1x wood board planking which provides limited lateral stability of the structure and properly sized plywood sheathing should be placed to provide the building with adequate lateral stability (C).
- The roof sheathing is wood planking, which is in fair to poor shape with significant deterioration, and should be replaced with properly sized plywood sheathing and nailing (C). The transition between the wood wall and the foundation on the high grade side appeared to be questionable. There was a visible gap between the wood wall and the foundation and no fastening of the wood wall to the foundation appeared to be present. The wood wall should be fastened to the foundation wall with properly sized adhesive or mechanical anchors (C).
- The roof is framed with 6x6 rafters that bear against each other at the peak. At the top wall plate level the roof is tied with 4 equally spaced ties, of which one of the ties were cut at approximately mid span (#68). While there is no evidence that the stud wall on the low grade side has shifted or bowed, it is likely that the roof ties will need to be reinforced to prevent any lateral movement due to the applied gravity loads from the roof (C).
- The slab on grade is in poor condition and it was noted that there was a hole in the slab on grade, which appeared to be undermined and filled with water along with several cracks (#67). Due to the condition of the slab, removal and replacement of the slab should be considered (A). There is a pit in the slab in which three pipes feed into, it is unknown as to the purpose of these pipes and should be investigated further.

Area "B":

Area "B" is located on the south east side of the factory and contains two additions, the original addition containing the workshop, the welding room, and the hallway (with garage door), while the grinding and storage rooms were added at a later date.

- The flooring in the workshop area is wood planking, and it is likely that this planking is laid directly on the subsoil (#72). If indeed the planking bears on the subsoil, it will likely be in direct contact with the wet ground and have considerable deterioration on the underside. The wood planking should be removed in several sample areas to verify the actual sub "floor" condition. One option, if the wood is bearing on soil, is to place a concrete slab with the wood floor placed atop the concrete (A).
- The remaining floor in this area "B" is a concrete slab on grade, which is slightly higher than the wood flooring in the workshop. However the slab in the storage room appears to be a raised slab similar to that found in the freight building, and then steps down to the grinding room (#76). The slab appears to be in good condition with no noticeable cracking.
- The sill throughout the current exterior of the building is a 2x board atop the concrete foundation, with no connection of the sill to the foundation observed (#73). Properly sized and spaced adhesive or mechanical anchors should be provided to secure the sill to the foundation (C).
- The sill between the two additions in this area is a heavy timber sill, which has considerable rot and some minor rotation (#75). As this is a load-bearing wall the sill should be replaced with a similar size pressure treated sill and properly fastened to the foundation (C).
- The exterior walls are 2x6 stud walls with a continued 6x6 top wall plate. The walls appear to be in good condition, though some minor deterioration was noted at the base of some studs.
- The roof is made of two systems; the original roof trusses and what appears to be supplemental rafters that were later installed to bear on the end of the original roof trusses. The roof rafters are clear span from the exterior wall at the workshop to the old exterior wall at the hallway. The roof rafters appeared to be in good condition with only minor deterioration. The connections were made with mortis and tenon jointing and wooden dowels. The connections of the trusses appear overstressed and should be properly reinforced with steel gusset plates (C).
- The roof rafters in the addition are supported on the exterior wall, the old exterior wall and at mid span with a timber beam. This beam is supported on posts at the end walls and with equally spaced timber frames located throughout the addition area (#77). The timber frames span parallel to the roof rafters and are supported with posts in the old exterior wall and the existing exterior wall. The majority of the roof system in this area of the building appear to be undersized and will need to be reinforced (C).

Area "C"

Area "C" is at the north east side of the factory and, like the forge area "A", the shed roof addition has high grade on one side, low grade on two sides, and opens to the factory on the fourth side.

- At the high grade side, the foundation wall is stone rubble and mortar which appears to be in good condition. Just as with the forge "A", the foundation on the high side is in close proximity to the road way (Elm Street) and should be checked for vehicular loading (#80)(C). If it is found that the wall needs to be reinforced, a steel reinforced concrete wall inset of the stone rubble foundation wall would be the one possible option.
- Inset at the base of the stone foundation wall is a 2'-3" tall x 5'-0" wide concrete "slab". The purpose of the slab is unknown, as it could be either a structural retrofit or, placed for the functioning of the factory (#80).
- Atop the foundation wall there is a short wood wall. This wall is of 2x construction with a 2x sill atop the foundation. The sill did not appear to be attached to the foundation, and in some areas was completely deteriorated. This sill needs to be replaced, which may be easiest if the entire wall was replaced at the same time (C). When the new sill is placed, proper attachment to the foundation wall shall be provided (C).
- The sheathing on the wall appeared to be a thin beadboard, which provides little lateral strength, and as such should be replaced with properly sized plywood sheathing.
- On the low grade sides of the building the wall framing is full size 2x4 studs with a 2x4 sill plate on a concrete foundation. There did not appear to be any connection of the sills to the foundation. These sills should also be properly fastened to the foundation and can be completed with adhesive or mechanical anchors (C).
- The roof is 2x6 rafters spanning the short direction and are supported on the old exterior wall and the current exterior wall. There are also two equally spaced beams. The beams are supported by 4 equally spaced semi trusses. The trusses span the width of the addition which are supported 1/3 of the way into the room from the factory side (#78, #79). These trusses are supported by headers and posts in the exterior wall and posts in the original exterior wall, with some headers appearing to be undersized and unsupported (#82). The posts at the old exterior wall bear on the slab on grade with no mechanical connections along with moderate deterioration (#83). (#81). These posts and headers should be replaced with adequately sized members and properly fastened to the foundation and other framing members (C).
- The purlin and roof rafter system in this area appear to be overstressed and should be reinforced (C).
- The exterior wall and sill are in good to fair condition with some water staining and deterioration at the base.

- The wall sheathing appears to be the same that was used on the high-grade wall and as such, should also be replaced or supplemented with properly sized plywood sheathing (#84) (C).
- The roof has plywood sheathing which appears to be in good condition and should provide an adequate diaphragm for the lateral loads.
- The old exterior wall appears to be in poor condition with sill deterioration and no connection to the foundation or the slab, as this wall is load bearing it should be replaced or repaired (C).

Area "D"

Area "D" is the main factory area and is fundamentally a post and beam building with a heavy timber truss and purlin roof system. The roof trusses originally have third point supports.

- Throughout the years, some of the main posts, supporting the trusses, have been cut or notched, likely due to equipment requirements (#85, #98). Steel beams with 8x8 wood posts were added under most of the beams, as structural reinforcement (#88, #91, and #101).
- The pressure of proper footings under the main posts is questionable and should be verified.
- If foundations are found not to have been placed under the posts, properly sized and reinforced footings should be placed (B).
- The roof trusses appear to have originally spanned the length of the building with 2 support posts equally spaced along the length of the trusses. The timber trusses material appear to be in good condition, although several trusses have shear failure by the end supports. Most of the locations with shear failures have been augmented with posts placed under the failure to support the trusses (#89).
- The bottom chord of the trusses are only half bearing on the support post with a single through bolt connection. This is likely partly the cause for the failure in the trusses, due to limited bearing and connection of the trusses to the support members. New posts of adequate size should be placed under the trusses to provide adequate support (D).
- The trusses are laterally stabilized by a truss type frame at the center of the truss, along with timber truss type lateral frames at the bottom chord. These lateral frames appear to be in good condition with little to no deterioration (#87).
- The addition of the steel beams placed beneath the trusses appears to have stabilized and significantly reinforced the trusses. It is recommended that the trusses, which have not been reinforced, should be adequately reinforced in a manner similar to the other trusses (C).
- At about the center of the building, where the chimney is located, there is what appears to be a clay masonry fire wall that was placed to protect the original heating equipment; this wall extends from the floor to the underside of the truss. The truss above the clay masonry wall is covered with lathe and plaster. The clay masonry wall is supporting the truss as evident by the high point in the roof located at this truss (#93). The clay masonry wall is in poor condition and no longer needed for fire protection. This wall is unstable and should be removed (C). If the clay masonry is removed, the truss will need to be reinforced in a similar manner to the other trusses (C).
- The roof rafters are 3"x8" at 30" o.c. and span from the purlin to either the exterior wall of the building or to the roof peak. The purlins appeared to be 8"x8" timbers with the rafters mortise and tenon into the purlins and the purlins mortised and tenoned into the trusses. The rafter and purlin portion of the roof system appears to be overstressed and will likely need to be reinforced (C).
- The roof sheathing is 1x plank, with newer 1x planks covering the openings to the belfry and the dormers, which appear to have been used for ventilation. The planking provides questionable shear transfer at the roof level, and as such, plywood sheathing should be placed over the planking to supplement the horizontal diaphragm strength and to provide proper substrate as the roof appears to be in need of replacement (C).
- The trusses and rafters were observed from various catwalks placed throughout the factory, as they were used for equipment access. The cat walks and the stairs to the catwalks are under sized and have questionable connections. At a minimum all the access ways to the catwalks should be removed for safety purposes. It is also recommended that the catwalks be removed or reinforced depending on the future use of the building (E).
- At one of the doors facing to Elm Street there is a roof overhang supported by a heavy timber protruding from the factory. This timber is in poor shape and should be removed or replaced (#59) (C).
- The factory has high grade on one side and low grade on three sides, with opening to additions on the three low grade sides. The foundation on the high grade side is similar to the high grade foundation in the forage "A" and the shed roof addition "C" with the foundation made from stone rubble and is in good to fair condition.
- As with the foundation in the forge "A" and the shed roof addition "C", the foundation wall is close to the road (Elm Street) and is subjected to vehicular loading.

- At the high grade foundation wall the culvert from the river enters the building. The culvert empties into a cast in place concrete tub (#95). Due to the poor seal between the concrete and the stone rubble foundation, water is
- seeping into the building through the cracks between the concrete and the stone wall, along with water seepage through the foundation wall. Proper waterproofing of the culvert tub should be implemented along with proper waterproofing of the high grade foundation wall (B/C). This will place additional hydrostatic pressure on the walls and as such the wall will likely need to be reinforced. One way to reinforce the wall is to place a new steel reinforced concrete foundation wall inset to the stone rubble foundation though further structural analysis would be required (B).
- The wall above the high grade foundation is 2x6 stud in fill with the portion over the culvert inlet having been replaced recently. At the end of the factory by the shed roof addition "C" the wood stud wall leans in significantly. The cause for the wall displacement was not determined.
- Based on the material used to repair the wall, it appears that this problem was around for some time (99, #100).
- The walls at the low grade side are 2x6 stud walls which bear atop a concrete foundation, with stone rubble foundation used at the culvert exit area (#90).
- The sill did not appear to be secured to the foundation with the exception of the sill over the culvert area in which steel wedges were used to secure the sill to the stone foundation. The in fill walls and sills appeared to be in good condition with some minor deterioration and water staining of the wood. Proper fastening of all the sills to the foundation shall be provided, via use of adhesive or mechanical anchors. When the sill is fastened to the foundation, replacement of deteriorated and damaged sill sections should be completed (C).
- The concrete foundation wall appears to be in fair condition with some minor vertical cracking in various areas of the factory. The cracks appear to be caused by settlement and should be monitored to determine if settlement of the factory is still occurring, however currently it does not appear to pose a structural concern (C). The cracks should be injected with a hydroactive grout or similar protection to help keep contaminants out of the concrete, and to prevent water infiltration into the building (#103) (C).
- The concrete slab in the factory area appears to be in fair condition with little cracking, though areas of the floor had 1" – 3" deep puddles (#92). This is likely due to the water infiltration into the building and the slab being out of level (#105). In some areas of the factory additional concrete footings were placed as needed for proper equipment support, which may be removed if the equipment is also removed, and depending on reuse of the building (#102)(A).
- Along the south east side of the factory there are several posts which have questionable connection to the foundations. These posts shall have proper connections and post bases provided (#104) (B).

- END OF REPORT -

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION



#1) Hip beam bearing on exterior wall (Note: Not all rafters attached to hip beam, proper connections should be provided.) (Office "A")



#3) An additional 2x rafter placed next to the chimney and supported with a post bearing on the ceiling joist (Office "A")



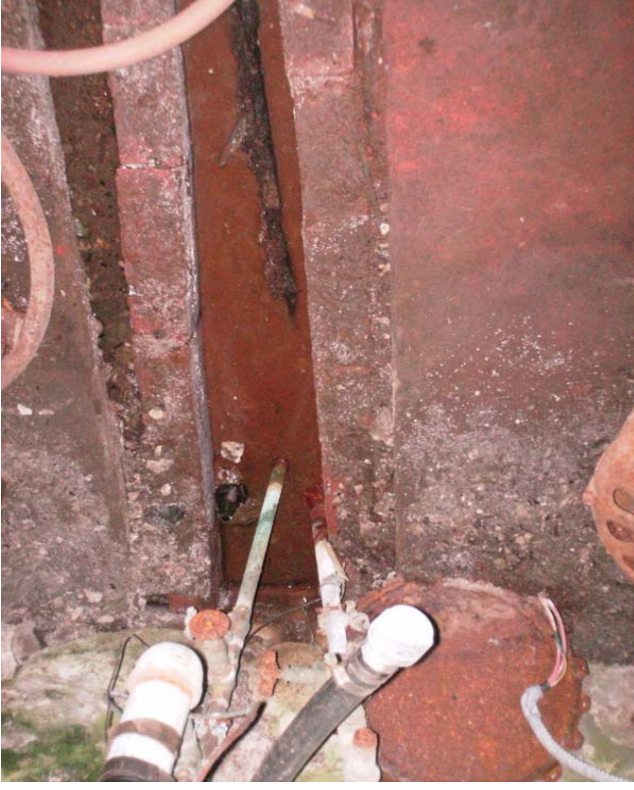
#2) Typical post support for the roof hip beam (Note the debris in the attic, which should be removed.) (Office "A")



#4) 1x board w/(3) 2x4 blocking atop ceiling joist, centered in blocking is the steel rod that extends through the second floor. (Office "A")



#5) Note the significant deflection of the second floor walls, with the low point at the intersection of all 3 partition walls. (Office "A")



#6) Trench in basement where water was noted to be continuously flowing. (Office "A")



#7) The water in the ditch was flowing to the point that it was undermining the adjacent slab. (Office "A")



#8) Vegetation noted to be growing through the stud wall at the walk-out basement. (Office "A")



#9) Wood column "Capital" view atop steel lolly column. Note that the wood column cap is not mechanically fastened to the beams. (Office "A")



#11) Floor joist mortise and tenon into sill. Properly sized joist hangers to secure joists to sill should be used. (Office "A")



#10) Steel lolly column not secured to the foundation and has significant surface rust. The column should be replaced and mechanically fastened to a proper foundation. (Office "A")



#12) Hip roof framing, using a hip board design and plywood roof sheathing. (Office "B")



#13) Step in slab at transition between the new and original portion of the building. (Note the new portion has the higher slab elevation.) (Office "B")



#15) View of walkout basement. (Note the stone retaining walls around the building and deteriorated clay masonry wall.) (Office "A")



#14) Stone foundation from the original building protruding into the new building foundation. (Office "B")



#16) Front of the original portion, the second floor wall at this level is leaning inward. (Office "A")



#17) Column bearing on pilaster and slab-on-grade with no leveling grout. Monitoring of pilasters should be implemented and grout placed under the columns. Also note that the cross bracing cable has been cut. (Steel Bldg.)



#19) Abandon housekeeping pad, appears to have been attempted to be removed. The pad should be removed as it is a potential tripping hazard. (Steel Bldg.)



#18) Connection of cross bracing cable to column (Steel Bldg.)



#20) Cross bracing in one direction is missing and should be replaced immediately . (Steel Bldg.)



#21) Roof rafter to exterior wall connections, no tie downs were observed. (Restroom)



#23) Bow in wall at top plate due to the roof loading and inadequate roof tie system. (Pickling)

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#22) Wood floor in the ladies restroom likely due to being placed after the building was constructed. (Restroom)



#24) Considerable deterioration of the sill. The sill should be replaced if the building is to be saved. (Pickling)

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#25) Rotation of the sill due to deterioration (Pickling)



#26) Timber cross members at top of wall were attempted to be turned into tusses. Also, steel ties used to try and prevent the wall from spreading. (Pickling)



#27) Connection of steel tie elements (Note if tension seizes the ties would sag.) (Pickling)



#28) North East – South East corner of packaging building (Packaging)



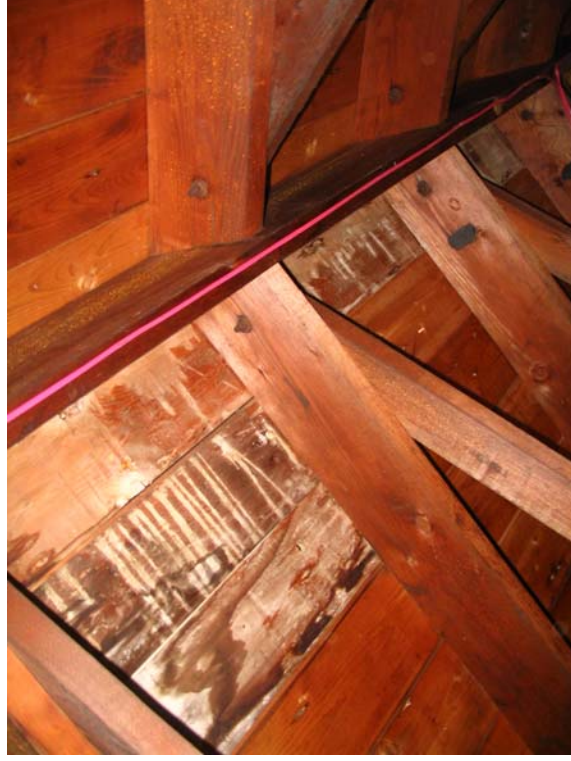
#29) Standing water located next to CMU foundation wall. A water management system should be implemented at this site. (Packaging)



#30) 2x diagonal uplift tie to secure truss to wall. (Packaging)



#31) Stud attached to sill w/steel angle. Sill appears to be in good condition w/little deterioration. (Packaging)



#32) Roof truss connection at peak (Packaging)



#33) Front view of shed, note that the siding is in poor condition and the exposed ends of the floor boards are deteriorated. (Shed)



#34) Broken CMU support, Note that the CMU is not reinforced or grouted. The foundation should be replaced with steel reinforced sonotubes and "Bigfoot" footings. (Shed)



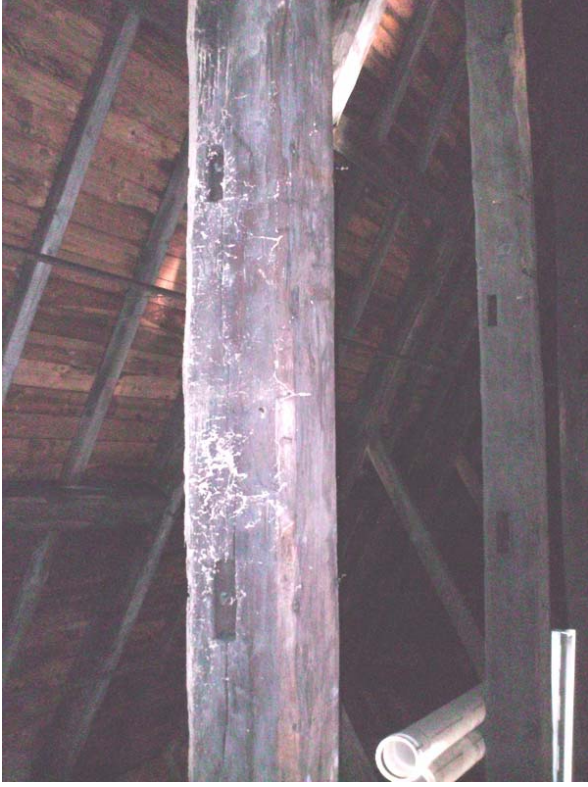
#35) Clay brick infilled between CMU and foundation. (Note: no connection of shed to pier.) (Shed)



#36) Overview of roof rafter systems and wall framing system. (Shed)



#37) Diagonal uplift ties at most trusses, Note that at some trusses these have been removed. (Freight "A")



#38) Lateral bracing should be replaced at the lower chords of the truss to prevent the lower chord from buckling and rotating. (Freight "A")



#39) Lateral bracing of the truss king post (Freight "A")



#40) Typical rafter and purlin Rafter system rafters are mortis and tenon together (Freight "A")



#41) Post under truss has been replaced. (Note the shim between the post and truss.) This post should be replaced with a properly sized full height post. (Freight "A")



#42) Truss diagonal bracing cut-out and replaced, new bracing is smaller and toe nailed to truss. (Freight "A")



#43) Vegetation growing through the wall sheathing and into the building. (Freight "A")



#44) Metal connector used to connect the king post to the bottom chord. (Freight "A")



#45) Top wall plate below truss, note the 2x6 stud infill wall between the posts. (Freight "A")



#46) The rafters bear on a 3"x5" beam spanning between trusses and provide limited bearing area for the rafters. (Freight "A")



#47) The Timber frame roof support bearing on the bottom chord of the gable end truss of the original building. (Freight "B")



#48) Exterior building sheathing replaced in an odd pattern, for unknown reasons. (Freight "B")



#50) View of the forming used to pour the raised slab.
(Freight "B")



#52) Stone rubble foundation appears to be in good condition with some voids between boulders. (Freight "A & B")



#51) The chimney for the wood burning stove needs to be repointed at the upper third. The bottom appears to be in good condition. (Freight "B")



#53) Overview of water side of the original building (Freight "B")



#54) Dip in roof at truck door #5, likely due to the deflection of the roof rafters and purlins (Freight "A")



#55) Ice and water build-up against the sill. Site water management should be planned to shed water away from all buildings. (Freight "A")



#56) Overview of the rear of the factory building. Note that the lines on the roof are the truss location. (Factory "ALL")



#57) Overview of the factory building facing Elm St. Note: The proximity of the street to the factory. (Factory "D")



#58) Overview of the forge (Part of the factory building). The roof is approximately 2'0" from finish grade. (Factory "A")



#59) Timber beam supporting roof; Note that the front wall leans in at the end. (Factory "D")



#60) Overview of shed roof and factory gable end. (Factory "C")



#61) Overview of Factory and workshop addition. Note the trench on the side of the building for water diversion. (Factory "B" and "D")



#62) Concrete bridge and platform, the bridge is in poor shape and should be removed or replaced (Factory "ALL")



#63) Wooden foot bridge has deteriorated to the point where it should be removed or replaced. Note that one of the railings has fallen off. (Factory "ALL")



#64) Culvert exit from under the building. (Refer to "Inspections of underwater structures" Report dated March 2008 by Inner Tech Marine Services, LLC for culvert condition.) (Factory "D")



#65) Trench around the majority of the building for water diversion. This should be considered with a site water management plan. (Factory "ALL")



#66) Concrete cast-in-place ramp connects the main Factory "D" to the Forge "A." Note that the ramp is covered with water. (Factory "A")



#67) Hole in concrete slab on grade filled with water. Note that the hose extends 4"-5" into the hole, due to undermining of the slab. (Factory "A")



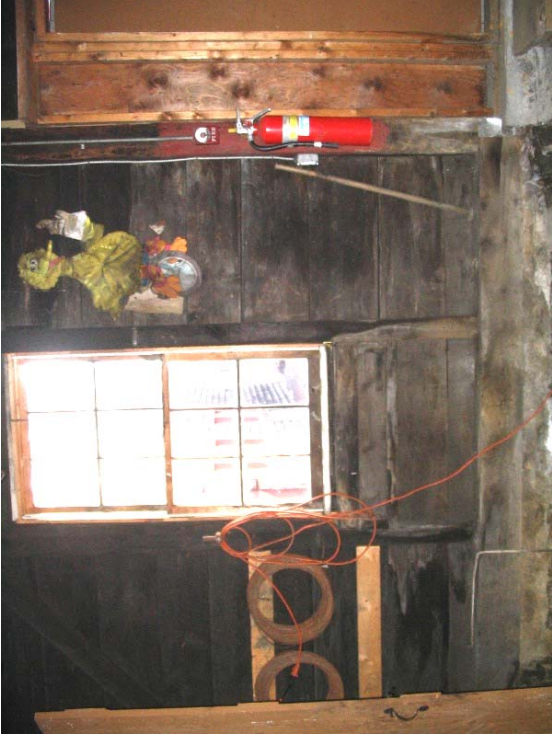
#68) Roof tie at top wall plate cut at mid span, and no longer ties the roof together. (Factory "A")



#69) Foundation Wall at high grade, 5'-7" stone rubble, 5" cement, 2'-1" clay masonry. (Factory "A")



#70) Timber wall tie and roof rafter connecting to sill.
(Factory "A")



#71) Wood wall at low grade bearing on sill plate. Note the board planking siding. (Factory "A")



#72) Wood flooring in the workshop area, which is slightly lower than the concrete slab in the area. (Factory "B")



#73) 2x sill bearing atop concrete foundation wall with no fastening to the foundation observed. (Factory "B")



#74) Post support under wood truss, typical throughout (Factory "B")



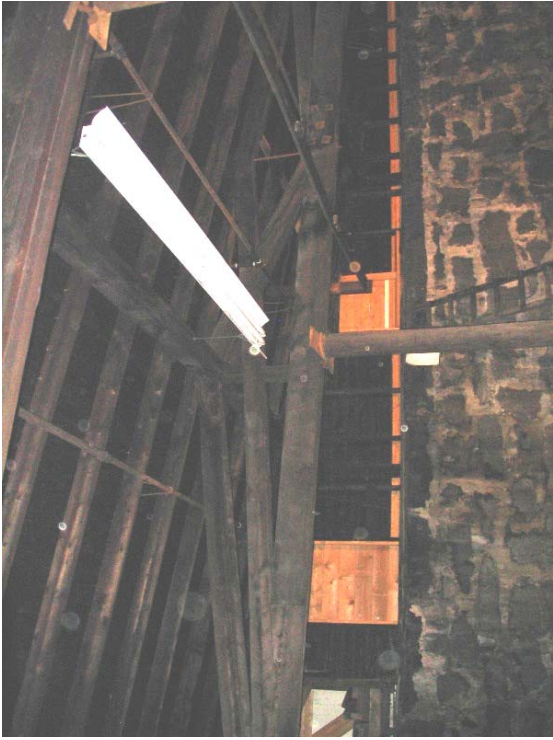
#75) Deterioration of sill between additions in area "B." This sill should be replaced with a new pressure treated sill fastened to the foundation. (Factory "B")



#76) Raised slab in storage room similar to the raised slab in the freight building. (Factory "B")



#77) Post and beam which supports the roof beam at the mid span of the rafters. (Factory "B")



#78) Post and Beam which supports the roof beam at the mid span of the rafters. (Factory "C")



#79) Support of semi-truss on post at the original exterior wall. (Factory "C")



#80) Stone rubble foundation wall with concrete slab inset, and wood frame wall on top. (Factory "C")



#81) Water staining and minor deterioration of sill and stud wall on low grade side. (Factory "C")



#82) Unsupported header at semi-truss location. Support posts and new header should be placed. (Factory "C")



#83) Deteriorated post base with no connection to foundation. (Factory "C")



#84) Overview of northeast exterior wall (Factory "C")



#85) Post cut under main truss; this was observed at various locations throughout the factory (Factory "D")



#86) Truss connection to end post. Note the shear failure of the truss at the support. (Factory "D")



#87) Lateral cross bracing of the truss (typical) (Factory "D")



#88) Steel beam supporting the main trusses. Note that the steel beam is supported on 8x8 wood posts. (Factory "D")



#89) Shear failure of main timber truss at support location. Note only half of the bottom chord bears on the support post. (Factory "D")



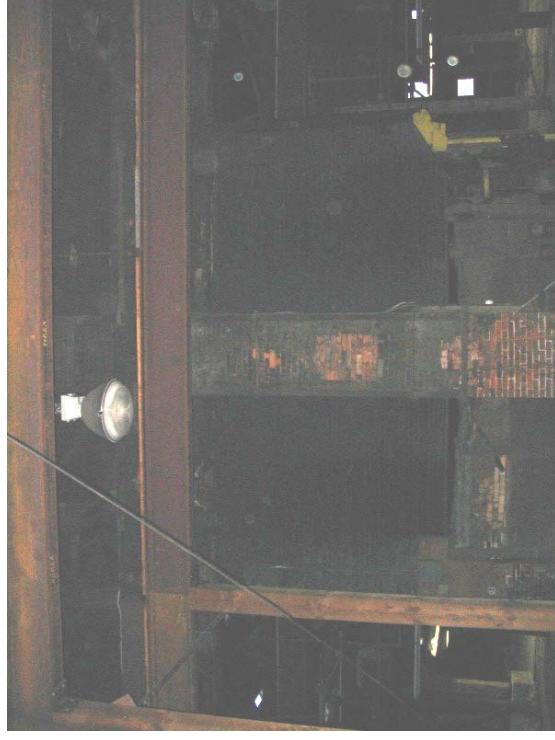
#90) 2x6 stud in fill wall with no connection of the sill to the concrete foundation wall. (Factory "D")



#92) Water 1" to 2" deep due to water infiltration through the foundation and unevenness of the slab. (Factory "D")



#91) Steel beams supporting the truss bottom chord and the original posts under the trusses (Factory "D")



#93) Clay masonry wall at original heating unit and chimney. This wall supports the truss, through need to be replaced, as such the truss will need to be reinforced. (Factory "D")



#94) Bottom chord bracing of truss, center bracing of truss (Typical) (Factory "D")



#95) Entrance of culvert into concrete "tub" in Main Factory. (Factory "D")



#96) Main exit pipe of culvert. Note: The bottom of the culvert and base concrete. (Factory "D")



#97 Main exit pipe for culvert. Note that pipe is sloped and disappears under the slab. (Factory D")





#102) Additional concrete footings were placed as needed for equipment support. (Factory "D")



#103) Minor cracking noted in the concrete foundation wall along the low grade side of the factory (Factory "D")



#104) Questionable support of post allows the southeast side of the building proper post base and connection shall be provided. (Factory "D")



#105) Post bearing on slab and water. Note that the slab in this area has three different elevations. (Factory "D")



#106) Connection of sill to rubble foundation via steel wedge. (Factory "D")

APPENDIX B
LIST OF RECOMMENDED REPAIRS

RECOMMENDED REPAIR SUMMARY

OFFICE BUILDING (“A” and “B”)

Immediate:

- Further investigation and evaluation is required to determine the framing and the framing conditions of the second floor with the removal of finish (Part “A”).

3-6 months or prior to Occupancy:

- The rafters that stop short of the hip beam and will need to be reinforced and proper connections placed (Part “A”).
- The vegetation should be removed from the walls and cut back away from the building at the walkout basement area (Part “A”).

6-12 months or prior to Occupancy:

- The roof framing next to the chimney needs to be reinforced with new rafters that span between the top wall plate and the ridge board. Full depth blocking between the rafters on both sides of the chimney is also required.
- The connections at the roof and ceiling levels must be reinforced with properly sized joist hangers or other mechanical means (Part “A”).
- The beams in the first floor require reinforcement (Part “A”).

1-2 years or prior to Occupancy:

- The debris in the attic area should be cleaned up and properly disposed of to reduce the load in the attic (Part “A”).
- Attach the joists to the beams and sills in the first floor with metal joist hangers or other acceptable mechanical connections (Part “A”).
- The columns in the basement must be replaced with new hot-dipped galvanized columns and properly attached to the beams and foundation. The footing conditions at the columns should also be verified and augmented as needed (Part “A”).
- The foundation at the walk-out area of the basement should also be further investigated to determine footing under pinning requirements(part “A”)

Prior to Occupancy:

- The deteriorated subfloor at the bottom of the stairs to the second floor needs to be replaced (Part “A”).
- Install perimeter drainage collection system and regrade to direct surface run off from the building.
- Install computerized water pumping system to mitigate water infiltration inside the building. This would include the following elements:
 - Repoint and grout deteriorated masonry joints with compatible hydraulic or epoxy modified waterproofing grout.
 - Provide supplemental positive side crystalline based, waterproof cementitious coating.
 - Structurally reinforce existing granite block foundation wall with new concrete foundation, strong back , or reinforced masonry pilasters to buttress the existing foundation.
- If the foundation is waterproofed, then the trough in the slab used to divert water can be properly in filled, along with the undermined portion of the slab. Some consideration in waterproofing the slab, along with installation of a sump pump should also be considered (Part A).

STEEL BUILDING (“A” and “B”)

Immediate:

- Due to the columns bearing on the pilaster and slab-on-grade, regular monitoring of the column pilasters should be implemented to determine any concrete damage/failure to reduce the likelihood of major foundation damage, due to the placement of the columns.
- The lateral cross bracing cables that have been cut should be replaced with proper connections to ensure the lateral stability of the structure. Optional structural bracing could likely be designed if there are access or functional issues with the original system.

6-12 months:

- Leveling grout should be injected between the baseplate and the foundation to ensure that a proper level-bearing surface is obtained under the columns.
- The baseplate at the center columns are bent and need to be reinforced.
- Inspect all existing bolted connections and explore missing or rusted bolts.

1-2 years or prior to Occupancy:

- An abandoned housekeeping pad is on the southwest side of the building. It appears that the slab was attempted to be removed, but was never completed. Consideration for the full removal of the housekeeping pad should be considered, as this is a potential tripping hazard.
- The slab on grade in the building appears to have some minor temperature and shrinkage cracking. These cracks should be properly sealed to prevent contaminants from penetrating into the concrete, and causing accelerated damage.

RESTROOM BUILDING**6-12 months or prior to Occupancy:**

- The roof rafters require hurricane ties at all rafter to top wall plate connections.

1-2 years or prior to Occupancy:

- The site needs to be regarded to direct surface runoff away from the building.
- Inspect the perimeter sill anchorage and install new adhesive or mechanical anchors where required.

PICKLING BUILDING

- This building is in very poor condition and should be demolished. Extensive repairs and replacement of deteriorated sills, foundation, roof framing and walls would be required to make the building structurally sound.

PACKAGING BUILDING**6-12 months or prior to Occupancy:**

- There did not appear to be any mechanical connection of the sill to the foundation. Adequately sized adhesive or mechanical anchors should be placed to resist the lateral shear load in the building.
- Most trusses did not show any signs of distress or failure, however a structural load analysis would need to be completed in order to determine the adequacy of the trusses and their connections.
- The bottom chord of one was cut out at the location where the ceiling is raised into the attic area. A single 2x6 rafter is not adequate for a roof rafter at that given location. This member must be replaced and truss reinforced to meet minimum load requirements.

1-2 years or prior to Occupancy:

- Regrading of the surrounding land should be considered to obtain proper grade clearance to the sill and to achieve positive drainage away from the structure.
- Observed temperature and shrinkage cracks should be properly sealed to prevent further crack propagation or damage to the concrete.

SHED**6-12 months or prior to Occupancy:**

- Based on the size, length, and spacing of the roof rafters, the capacity of the roof system is marginal and should be reinforced, at minimum, hurricane ties and sill plate anchors should be installed to tie down the building. .

1-2 years or prior to Occupancy:

- Due to the poor condition of the foundation and the lack of attachment of the building to the CMU foundation piers, it is recommended that the existing foundation be replaced with new concrete piers. It is recommended that the new foundation be reinforced concrete sonotubes with “Bigfoot” footing with proper mechanical connections to the building.
- Deteriorated floor boards and floor joists will need to be replaced.
- Install additional wall studs to align with the roof rafters; secure with approved metal hardware.
- Reinforce existing walls with plywood sheathing placed on the inside face of the studs and nail accordingly.

FREIGHT BUILDING (“A” and “B”)**6-12 months or prior to Occupancy:**

- Replace the sill around the perimeter of the building and install proper connections of the sill to the foundation (Part “A” and “B”).
- Reinforce the wood beam that supports the end of the rafters at the exterior of the building is likely overstressed and will need to be reinforced and provide proper conditions (Part “A”).
- Place new diagonal braces or tie down straps from the truss to the post where the diagonals, truss to post braces have been removed. (Part “A”).
- The posts which have been replaced with new posts of insufficient height and/or limited size should be replaced with properly sized full height posts and diagonal bracing (Part “A”).
- The truss bottom chord lateral bracing should be replaced as it prevents the trusses from buckling and rotating; and will help to resist the lateral loads applied to the building (Part “A”).
- Reinforce the existing purlins that span between the trusses. New connections will also be required (Part “A” and “B”).
- Reinforce the existing roof and wall sheathing with new plywood to enhance lateral load resisting capacity of the building. (Part “A” and “B”).
- On the river side of the building by the addition, vegetation has grown through the wall sheathing. Trim back overgrowth and vegetation from the building, as well as the vegetation surrounding the building areas (Part “A”).
- Reinforce or replace the existing 8”x8” gable end truss bottom chord between the new and old building that has been significantly notched (Part “B”).

1-2 years or prior to Occupancy:

- Removal and replacement of the slab at the southeast corner of the building, due to the settlement and significant slope in the slab (Part “A”).
- The trusses, while appearing to be in good condition, should be analyzed for overall capacity (Part “A”).
- Repoint and repair existing bricks at the chimney for the wood burning stove in the office area (Part “B”).
- Underpin and replace the existing foundation with a new cast in place concrete foundation wall. This wall can be faced with a stone veneer to simulate the look of the stone foundation (Part “A” and “B”).

Prior to Occupancy:

- Some consideration should be made for the complete removal of the existing slab; as this would simplify the sill replacement and allow for a new cast in place foundation be placed inset of the existing wall. A new slab placed atop structural fill at the desired elevation could then be constructed (Part “A” and “B”).

TREMONT NAIL FACTORY (“A”, “B”, “C”, and “D”)**Immediate:**

- The access to the catwalks should either be completely removed or else reinforced for safety purposes. It is also recommended proper access be provided depending on the future use of the building (Part “D”).

3-6 months or prior to Occupancy:

- The two exterior bridges that span over the culvert exit are in poor shape and should be removed for safety reasons. The bridges can be replaced or rebuilt if so desired. (General)

- The roof trusses are only partially bearing on the existing posts at the exterior wall and must be reinforced. New posts of adequate size should be placed with proper mechanical connections under the trusses to sufficiently support the ends of the truss (Part “D”).

6-12 months or prior to Occupancy:

- The foundations around the perimeter of the building should be waterproofed with a breathable, cementitious coating. Waterproofing the walls will increase the hydrostatic forces on the foundation wall and as such, a full analysis of the wall would be needed. If it is found that the wall needs to be reinforced an inset cast-in-place concrete wall would likely be the most efficient augmentation (Part “A”, “B”, “C”, and “D”).
- The roadway (Elm Street) is within feet of the building, and as such, has a potential for vehicles to pull up next to the building/foundation wall. This condition may place extra lateral surcharge loading onto the foundation wall which should be analyzed to ensure the wall has adequate capacity, along with the additional hydrostatic pressures noted above (Part “A”, “C”, and “D”).
- Proper attachment of the sill to the foundation shall be provided with the use of properly sized and spaced adhesive or mechanical anchors. When the sills are fastened to the foundation, areas which are deteriorated shall be replaced with a pressure treated sill of similar size. (Part “A”, “B”, “C”, and “D”).
- The wall sheathing is typically 1x wood board planking, and in some areas beadboard sheathing. These sheathing materials provide limited lateral stability of the structure and properly sized plywood sheathing should be placed to provide the building with adequate lateral stability (Part “A”, “B”, “C”, and “D”).
- There was a visible gap between the wood wall and the foundation and no fastening of the wood wall to the foundation appeared to be present. The wood wall should be fastened to the foundation wall with properly adhesive or mechanical anchors (Part “A”).
- Some of the top wall ties have been cut while there is no evidence that the stud wall on the low grade side has shifted or bowed. It is likely that the roof ties will need to be reinforced to prevent any lateral movement of the applied gravity loads from the roof (Part “A”).
- The roof sheathing is wood planking, which is in fair to poor shape with significant deterioration and warped. This sheathing should be replaced with properly sized plywood sheathing, blocking and nailing (Part “A”, “B”, and “D”).
- The load bearing wall and sill between the additions in area “B” should be replaced with a similar size pressure treated sill and properly fastened to the foundation (Part “B”).
- The connections within the trusses were made with mortis and tenon jointing and wooden dowels. These connections are questionable and should be properly reinforced with steel gusset plates (Part “B”).
- The majority of the roof system in area “B” of the building appears to be undersized and will need to be reinforced (Part “B”).
- Due to the deterioration and discontinuous load path of the existing roof supports, the posts and headers which support the roof framing in area “C” should be replaced with adequately sized members and properly fastened to the foundation and other framing members (Part “C”).
- The old exterior wall between area “D” and “C” appears to be in poor condition with sill deterioration and no connection to the foundation or the slab. This wall is load bearing and should be replaced or repaired (Part “C”).
- The trusses which have not been reinforced should be adequately reinforced in a manner similar to the other trusses (Part “D”).
- The clay masonry wall in the center of the factory is in poor condition and should be removed. Since the wall may be supporting the truss above, the truss should be adequately reinforced in a similar manner to the other trusses (Part “D”).
- At the doors facing Elm Street, the roof overhang is supported by a heavy timber protruding from the factory. This timber is in poor shape and should be removed or replaced (Part “D”).
- Due to the water leakage around the culvert tub, proper waterproofing of the culvert tub should be implemented (Part “D”).
- The rafter and purlin portion of the roof system in the main factory building appear to be overstressed and will likely need to be reinforced (Part “C” and “D”).
- Where the minor vertical cracking in various areas of the foundation is found, they should be monitored to determine if the settlement of the factory is continuing. The cracks should be injected with hydroactive grout or similar protection to help keep contaminants out of the concrete, and to prevent water infiltration into the building (Part “D”).

1-2 years or prior to Occupancy:

- The 8x8 posts that support the supplemental steel beams under the truss should have the footings underneath verified. If foundations have not been placed under the posts, properly sized and reinforced footings should be placed (Part “D”).
- Along the southeast side of the factory there are several posts which have questionable connection to the foundations. These posts shall have proper connections and post bases provided (Part “D”).
- Proper waterproofing of the culvert inlet tub should be provided. (Part “D”)

Prior to Occupancy:

- The slab in the forge area is undermined and should be removed and replaced.
- The wood planking in the workshop should be removed and replaced with a new concrete slab with the wood flooring and sleepers placed atop the concrete (Part “B”).
- Remove abandoned housekeeping slabs where equipment support is no longer needed (Part “D”).

- END OF RECOMMENDATIONS -

D. VLACHOS ASSOCIATES MECHANICAL, ELECTRICAL & PLUMBING SYSTEMS REPORT



Mechanical, Electrical. and Plumbing/Fire Protection Systems Survey

**Tremont Nail Company
January 2009**

INTRODUCTION:

This report was performed by Vlachos Associates Inc. to determine the condition of the mechanical, electrical, and plumbing (MEP/FP) systems at the Tremont Nail Company in Wareham, MA. Comments below will be in response to general statements made concerning future work in this existing building complex.

In general, the buildings are not currently provided with adequate environmental control (heating, cooling, or ventilation) systems. If the buildings are to be renovated and occupied, modern HVAC equipment should be installed to provide for its uses. Also required under any renovation program would be a ventilation (exhaust) system to serve any new rest rooms as required by Code.

The electrical systems also are typically inadequate, and in some cases dangerous. The various panels in many areas show signs of corrosion and the breakers, fuses, and wiring generally have not been upgraded. All should be inspected and made safe by an electrician. Emergency egress lighting is not generally installed and should be provided. General fire alarm and smoke detection systems (where they are installed) are typically inadequate and will require modernization. Buildings not currently provided with smoke detection should be outfitted with those systems.

The plumbing cold water piping system is generally constructed with copper piping materials. The copper piping is assembled with soldered connections. The cold-water piping was found to be typically un-insulated. These systems appear to be in relatively good shape and, as they are primarily copper, would seem to have useful life before requiring replacement. If, however, major renovations are to be considered, the piping may need to be replaced/relocated to allow access during construction. The plumbing fixtures are typically older, and the fixtures and associated trim are not water-saving type fixtures. There are no true "accessible" facilities in the building complex. Any new plumbing fixtures that will be installed will need to be low water consumption type and must meet all requirements of the Massachusetts State Plumbing Code.

Sprinkler systems, where installed, are generally non-code compliant and will require upgrades including new piping and additional heads. New sprinkler systems should be installed in the buildings currently without.

Many of the MEP systems in the various buildings appear to be inactive and likely have been for some time. The capacity and operational effectiveness of these systems are sure to have decayed to some extent. Systems that sit unused for extended periods may not prove usable after some length of inactivity.



By building, our remarks are as follows:

Restroom Building

A small, attic-mounted, gas-fired blower serves the heating and ventilation needs of the building. Sidewall exhaust systems are installed to provide the restroom exhaust requirements. The systems appear to be generally serviceable, though somewhat older.

The 12-zone security alarm panel is located within the building. It is unclear where the various zones are or how much of the facility is actually protected. The system seems to be powered.

The dewatering pump control and alarm system is located on the exterior of the building. The pump appears to dewater low points at the site. There are signs of water damage to some of the buildings and it is unclear how effective the system actually is.

Lighting in the building is provided by older, less efficient fluorescent systems.

The plumbing fixtures are older. These fixtures and associated trim are not water-saving type fixtures. The plumbing fixtures and trim appear to be operable with no reported problems. There are no true “accessible” facilities in the building. Any new plumbing fixtures that will be installed will need to be low water consumption type and must meet all requirements of the Massachusetts State Plumbing Code.

The building is not sprinklered. A new sprinkler system should be installed.

Tremont Nail Factory Building

Large gas-fired, floor-mounted furnace systems are installed to provide for the heating needs of the major areas in the building. Smaller, gas-fired unit heaters are also installed throughout various areas. Electric heat is installed in the office area. Propeller ceiling fans are installed to help move heat down from the high points of the building; they also provide a modicum of ventilation.

The HVAC systems are generally older and in various states of repair and serviceability. Code-required ventilation is not available, and the existing systems would not be capable of providing adequate environmental comfort to almost any future tenants. Wholesale replacement will likely be required.

Power is run throughout the building in various voltages, as high as 550V. The electrical systems are older and generally non-code compliant and unsafe in many respects. Loose and uncovered wiring, older breakers, transformers, and other non-code compliant equipment is installed in various, typically open and exposed, locations. An electrician should test and secure/address the safety issues of the existing electrical installations. Renovations to the building will require near total replacement.

The lighting systems are typically older, inefficient fluorescent lamps.

Smoke detector systems are installed and appear somewhat newer, but coverage provided is inadequate.



Any renovation or re-use of the building will require significant upgrades to the fire safety systems.

There are no plumbing facilities in the building.

A dry-pipe sprinkler system is installed in the building and was last tested in December of 2008. The system is functioning but does not provide true, code-compliant coverage. The sprinkler head spacing is typically too great to meet current code, and coverage around and above beams and soffits is inadequate. This should be addressed under any future renovation. Should the building be renovated and occupied (and heated), the systems may be converted to standard wet-pipe type.

Pickling Building

Gas-fired, infra red heaters are hung in the spaces to provide heating. The systems appear to be in good condition, however code-required ventilation however is not available, and the existing systems would not be capable of providing adequate environmental comfort to almost any future tenants. Wholesale replacement will likely be required.

The electrical systems (panels, breakers, and wiring) are generally older, non-code compliant, and unsafe in many respects. Loose and uncovered wiring, older breakers, and other non-code compliant equipment is installed in various, typically open and exposed, locations. An electrician should test and secure/address the safety issues of the existing electrical installations. Renovations to the building will require near total replacement.

The lighting systems are typically older, inefficient fluorescent lamps.

Smoke and heat detector systems are installed and appear to provide adequate coverage.

There are no plumbing facilities in the building.

The building is not sprinklered. New systems should be installed.

Packaging Building

Gas-fired unit heaters are hung in the spaces to provide heating. The systems appear to be in decent condition. Code-required ventilation is not available, and the existing systems would not be capable of providing adequate environmental comfort to almost any future tenants. Wholesale replacement will likely be required.

The electrical systems (panels, fuses, breakers, and wiring) are generally older, non-code compliant, and unsafe in many respects. Loose and uncovered wiring and other non-code compliant equipment is installed in various, typically open and exposed, locations. An electrician should test and secure/address the safety issues of the existing electrical installations. Renovations to the building will require near total replacement.



The lighting systems are typically older, inefficient fluorescent lamps.

Smoke detector systems are installed in approximately one-half of the building on the north side. The systems installed appear somewhat newer and coverage is adequate. Any renovation or re-use of the building will require significant upgrades to the fire safety systems to cover the remaining “half” of the building.

There are no plumbing facilities in the building.

The building is not sprinklered. New systems should be installed.

Freight Building

Gas-fired, infra red heaters are hung in the spaces to provide heating. The systems appear to be in serviceable condition. Code-required ventilation is not available, and the existing systems would not be capable of providing adequate environmental comfort to almost any future tenants. Wholesale replacement will likely be required.

The electrical systems (panels, breakers, and wiring) are generally older, non-code compliant, and unsafe in many respects. Loose and uncovered wiring and other non-code compliant equipment is installed in various, typically open and exposed, locations. An electrician should test and secure/address the safety issues of the existing electrical installations. Renovations to the building will require near total replacement.

The lighting systems are typically older, inefficient fluorescent lamps.

Smoke and heat detector systems are installed and appear to provide decent coverage.

There are no plumbing facilities in the building.

A dry-pipe sprinkler system is installed in the building and was last tested in December 2008. The system is functioning but does not provide true, code-compliant coverage. The sprinkler head spacing is typically too great to meet current code, and coverage around and above beams and soffits is inadequate. This should be addressed under any future renovation. Should the building be renovated and occupied (and heated), the systems may be converted to standard wet-pipe type.

Steel Building

A gas-fired, floor-mounted furnace system is installed to provide for the heating needs of the building. Smaller, gas-fired unit heaters are also installed throughout various areas. The system appears to be in reasonable condition.

The lighting and the electrical systems (panels, breakers, and wiring) are generally newer and in better



condition that those found in the majority of the buildings.

Smoke detector systems are not provided.

The plumbing fixtures located in the northwest shed addition are newer; however, the fixtures and associated trim are not water-saving type fixtures. The plumbing fixtures are vented; fixtures and trim appear to be operable with no reported problems. There are no true “accessible” facilities in the building. Any new plumbing fixtures that will be installed will need to be low water consumption type and must meet all requirements of the Massachusetts State Plumbing Code.

The sprinkler system in the building is functioning and appears to provide adequate coverage.

Office Building

A gas-fired, split condenser system is installed in the basement and ducted to floor grilles throughout the building. The system appears to be in good condition.

The lighting and the electrical systems (panels, breakers, and wiring) are generally newer (likely less than 10 years old) and in better condition than those found in the majority of the buildings.

Smoke detectors provide adequate coverage.

A 50kVA generator is installed behind the building and appears to be serviceable, although somewhat rusting. It is not known when the system was last tested.

The plumbing fixtures are somewhat newer; however the fixtures and associated trim are not water-saving type fixtures. The plumbing fixtures and trim appear to be operable with no reported problems. There are no true “accessible” facilities in the building. Any new plumbing fixtures that will be installed will need to be low water consumption type and must meet all requirements of the Massachusetts State Plumbing

There are no sprinkler systems in the building.

E. COASTAL ENGINEERING CIVIL ASSESSMENT REPORT

Project No. C17167.00

**TREMONT NAIL COMPANY COMPLEX
CIVIL ENGINEERING FEASIBILITY ASSESSMENT**

May 11, 2009

Prepared by:



260 Cranberry Highway
Orleans, MA 02653

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**Civil Engineering Feasibility Assessment
Tremont Nail Company Complex
7 Elm Street
Assessor's Map 132, Parcel A1
Wareham, Massachusetts**

May 11, 2009

Coastal Engineering Co., Inc. has performed a feasibility assessment relative to a mixed-use redevelopment of the Tremont Nail Company complex at the above referenced address. The assessment was based upon a review of applicable local, state, and federal regulatory requirements that would apply to the redevelopment of the property. The assessment also included two site visits and discussions with local officials. The focus of the assessment was for the continued use of the historic factory buildings, development of a new residential use on the western portion of the site, and a recreational use based on the river access.

Existing Site Conditions

The subject property has an area of approximately seven acres that previously housed the Tremont Nail Company. There are eight buildings on the site, seven of which are historic and date back to the nineteenth century. The eighth building, located on the westerly portion of the site, is a steel building that was constructed in the 1976+/- . The site is bounded by the Wankinco River on the east, Elm Street on the north, Commonwealth of Massachusetts Rail Road on the west and wetlands that border the river to the south. A bordering vegetated wetland occupies approximately 1.4 acres of the southerly portion of the site. (Appendix A & B)

Approximately 6 acres of the site lies within a FEMA mapped, 100-year AE15 flood zone. (Appendix C) An area of approximately 1.1 acres along the western boundary of the site including the area around and west of the office building is located above the 100-year stillwater flood elevation of 15. Any new development on the site within the 100 year flood zone will need to be constructed to comply with the applicable requirements of section 780 CMR 120.G of the Massachusetts State Building Code and the Flood Plain Overlay District of the Wareham Zoning By-Laws.

The site is presently served by municipal water and sewer service. There is an existing sewage lift station adjacent to the rest room building that discharges to the municipal sewer main in Main Street via a two inch diameter force main. The previous owner of the site installed the pump station and record plans of the installation were not available at the sewer department. A system of gravity sewers and sewer manholes collect and convey the sewage from the buildings with plumbing on the site to the sewer lift station. The Lift station is a duplex submersible pump system with a pump chamber and valve vault. Prior to redevelopment, the lift station wet well, pumps, and force main will need to be evaluated to determine if the system is capable of accommodating additional flow. The two-inch diameter force main also serves a property on the North site of Elm Street and the lift station and force main is likely to require upsizing in order to accommodate any substantial increase in sewage flow from the site. An evaluation of the lift station was beyond the scope of this report.

Stormwater on the site is accommodated by a system of catch basins and piping that discharge to a catch basin west of the pickling and packaging building. There is a 12" diameter pipe that discharges from that basin. At the time of the

site inspection, the catch basin was observed to be full and the outlet pipe was surcharged. An inspection along the river during low tide did not uncover any stormwater discharge pipes. It is probable that there are stormwater recharge fields or chambers beneath the pavement. With the outlet pipe from the catch basin submerged, it is likely that the stormwater leaching system has limited capacity to effectively recharge stormwater. Some of the buildings have gutters and others sheet flow to the adjacent ground. The majority of the stormwater off of the impervious surfaces on the site ends up in the river or bordering wetland without any treatment. When the site is redeveloped, stormwater management measures will need to be constructed in order to treat and recharge the stormwater from the buildings and impervious areas. The site design should include Low Impact Development measures such as reducing impervious areas, Bio-Retention, and vegetated filter strips to remove pollutants from the stormwater prior to recharge.

During the site visits, there was constant flow through portions of the drainage system that could be attributed to groundwater flow and possibly seepage from the dam that separates the site from Parkers Mill Pond. There is a shallow open channel that has water flowing west to east through the basement of the office building. The open channel should be replaced with an enclosed pipe or small box culvert or diverted around the building. Dam inspections have been performed by others and the condition of the dam was beyond the scope of this report.

The site inspection included a review of the stone bulkhead along the river from south of the channel adjacent to the factory building to the south side of the freight building. An inspection of the bulkhead was performed during low tide when the full face of the wall was exposed. The bulkhead is also part of the foundation of a portion of the freight building. The wall was found to be in fair condition with some portions of the wall in need of repair. It appears that additional stone had been placed at the base of the bulkhead by the south end of the freight building in order to prevent scour at the toe of the bulkhead. At the south end of the wall, some stones were missing at the toe of the bulkhead. While the stone bulkhead may predate local, state, and federal regulations, any repair of the structure would require the approval of the Wareham Conservation Commission, Chapter 91 Waterways Program, and U.S. Army Corps of Engineers.

Site Redevelopment

In order to redevelop the site to include new multifamily residential and waterfront recreational uses, the following local, state, and federal regulatory reviews will be necessary:

- **Wareham Zoning Board of Appeals**

The site is located in the Wareham Village (WV1) zoning district. Under the Town of Wareham Zoning By-Laws Use Regulations, a special permit will be required from the Wareham Zoning Board of Appeals in order to redevelop a portion of the property for a multifamily residential use. In addition, any new development, expansion, or change of use, other than a single family or two family residences, that would require ten or more parking spaces under the Zoning By-Laws also requires a Special Permit for Site Plan Review from the Zoning Board of Appeals.

- **Wareham Conservation Commission**

- ◆ The redevelopment of the site will require approval from the Wareham Conservation Commission under the Massachusetts Wetlands Protection Act and Regulations (G.L.Ch. 131, §40 & 310 CMR 10.00), the Massachusetts Rivers Protection Act and regulations, (310 CMR 10.58), the Massachusetts Stormwater Management Standards, and the Wareham Wetland Protective By-Law (Division VI, Article I of the Wareham General By-Laws. The 1.16+/- potential development zone shown on Appendix B is based on the Conservation Commission allowing development to within 50 feet of the wetland resource area. This may be possible due to the existing site disturbances and if the project improves the conditions within the buffer with buffer zone enhancement and mitigation plantings.

- ◆ Wetlands Protection Act – The Wetlands Protection Act protects wetlands and the public interests that they serve, including flood control, prevention of pollution and storm damage, protection of public and private water supplies, groundwater supply, fisheries, land containing shellfish, and wildlife habitat. Requiring a review of proposed work that may alter wetlands protects these public interests. The law protects not only wetlands, but other resource areas, such as land subject to flooding (100-year floodplains), the riverfront area (added by the Rivers Protection Act), and land under water bodies, waterways, salt ponds, fish runs, and the ocean. At the local level, the community's conservation commission administers the Wetlands Protection Act. On the state level, the Department of Environmental Protection (DEP) oversees administration of the law. The conservation commission ensures that proposed activities will not alter resource areas and the public interests they provide by reviewing projects on a case-by-case basis according to the Wetlands Protection Act regulations. The regulations describe how each type of resource area provides one or more of the public interests. The regulations also specify the type and extent of work allowed in resource areas. Proposed work must meet these standards. The law regulates many types of work in resource areas, including vegetation removal, regrading, and construction of houses, additions, decks, driveways, and commercial or industrial buildings.
- ◆ Rivers Protection Act - In 1996 the Massachusetts Legislature passed the Massachusetts Rivers Protection Act, more formally known as "An Act Providing Protection for the Rivers of the Commonwealth". This law amends the Wetland Protection Act, MGL Chapter 131 Section 40, and provides protection to rivers by regulating activities within a newly established wetland resource area known as the Riverfront Area. This Act identifies eight purposes, which are the same as the Wetlands Protection Act's interests. The Rivers Protection Act establishes a state policy for protecting the natural integrity of the Commonwealth's rivers and to establish open space along rivers. The Rivers Protection Act clearly states that projects be located outside the Riverfront Area if they will result in significant adverse impacts to the eight purposes and when a practicable alternative is available. If a practicable alternative is available that could locate a project out of the Riverfront Area it should be chosen. If there is no practicable alternative to locating the project in the Riverfront Area, impacts must be minimized and mitigated so there are no significant adverse impacts to the Riverfront Area. If it is determined that the project will have significant adverse impacts to the Riverfront Area, the project should be denied. If any part of the Riverfront Area is Salt Marsh or Bordering Vegetated Wetlands (BVW) the strict standards of the wetland regulations that currently exist for these two wetland resource areas also should be used.
- ◆ The Riverfront Area is the area of land between a river's mean annual high water line and a parallel line measured outward 200 feet. The applicant is required to demonstrate that there is no practicable alternative and substantially equivalent economic alternatives with less adverse effects on the interest of the act. The purpose of evaluating project alternatives. Appendix B shows the extent of the Riverfront Area, the bordering vegetated wetlands on the site, and the associated buffer zones.
- ◆ Stormwater Management Standards - The Stormwater Management Standards address water quality (pollutants) and water quantity (flooding, low base flow and recharge) by establishing standards that require the implementation of a wide variety of stormwater management strategies. These strategies include environmentally sensitive site design and LID techniques to minimize impervious surface and land disturbance, source control and pollution prevention, structural BMPs, construction period erosion and sedimentation control, and the long-term operation and maintenance of stormwater management systems.
- ◆ If there is an increase of impervious area associated with redevelopment of the site, the project could be treated as a combination redevelopment and new development. The Nail factory portion of the site would be required to comply with the Stormwater Standards to the maximum extent practicable, and at minimum improve existing conditions. If the new residential development portion of the project results in an increase of impervious area, the development on that portion of the site would need to fully comply with the Stormwater Standards.
- ◆ A construction period erosion, sedimentation, and pollution prevention plan will need to be developed and implemented in order to control construction related impacts. A long term stormwater system operation and

maintenance plan including a spill response plan will need to be prepared to accompany any Notice of Intent applications submitted to the Conservation Commission for approval.

- ◆ Wareham Wetlands Protective By-law – In addition to the interests protected under the Massachusetts Wetlands Protection Act, the interests under the local Wetlands Protective By-Law include; erosion and sedimentation control, water quality, aesthetics, aquaculture, and recreation values. The application under the Wetlands protective By-Law is typically submitted and reviewed concurrently with the application filed under the State Wetlands Protection Act. Under the local Wetlands By-Law, the Conservation Commission may require that the applicant maintain a strip of continuous, undisturbed vegetative cover within the 200 foot River Area or 100' resource area buffer zone, unless the applicant convinces the Commission that the area or part of it may be disturbed without harm to the values protected by the By-Law. Since the site is already heavily developed within the Riverfront Area and resource area Buffer Zones, the impacts from any new development on the site may possibly be mitigated by improving the existing conditions. Measures such as planting of vegetative buffers to provide filter strips and improve wildlife habitat, as well as stormwater management improvements could be proposed to offset and mitigate any new Buffer Zone impacts.

Massachusetts Division of Waterways

- Any proposed development in the river below the high tide line, such as floats for recreational boating access, will require approval under Massachusetts General Law Chapter 91, the Waterways Licensing Program. The Commonwealth formally established the program in 1866. Chapter 91 is the Commonwealth's primary tool for protection and promotion of public use of its tidelands and other waterways. The Commonwealth formally established the Waterways Licensing Program in 1866. Any modification or expansion of the facility seaward of the present structures will require approval under the waterways program.

U.S. Army Corps of Engineers

- In addition to the Chapter 91 Waterways program, the U.S. Army Corps of Engineers (ACOE) has jurisdiction for work in the tidelands and rivers. Coverage under the Massachusetts Programmatic General Permit (PGP), or an Individual Permit, will be required for any proposed development in the river below the high tide line. The ACOE requires that the following local and state permits must be obtained prior to authorization under the PGP: Final Order of Conditions from the Conservation Commission, Waterways License under Chapter 91, Water Quality Certification from Massachusetts DEP, and a determination that the proposed project is consistent with the Massachusetts Coastal Zone Management Plan.

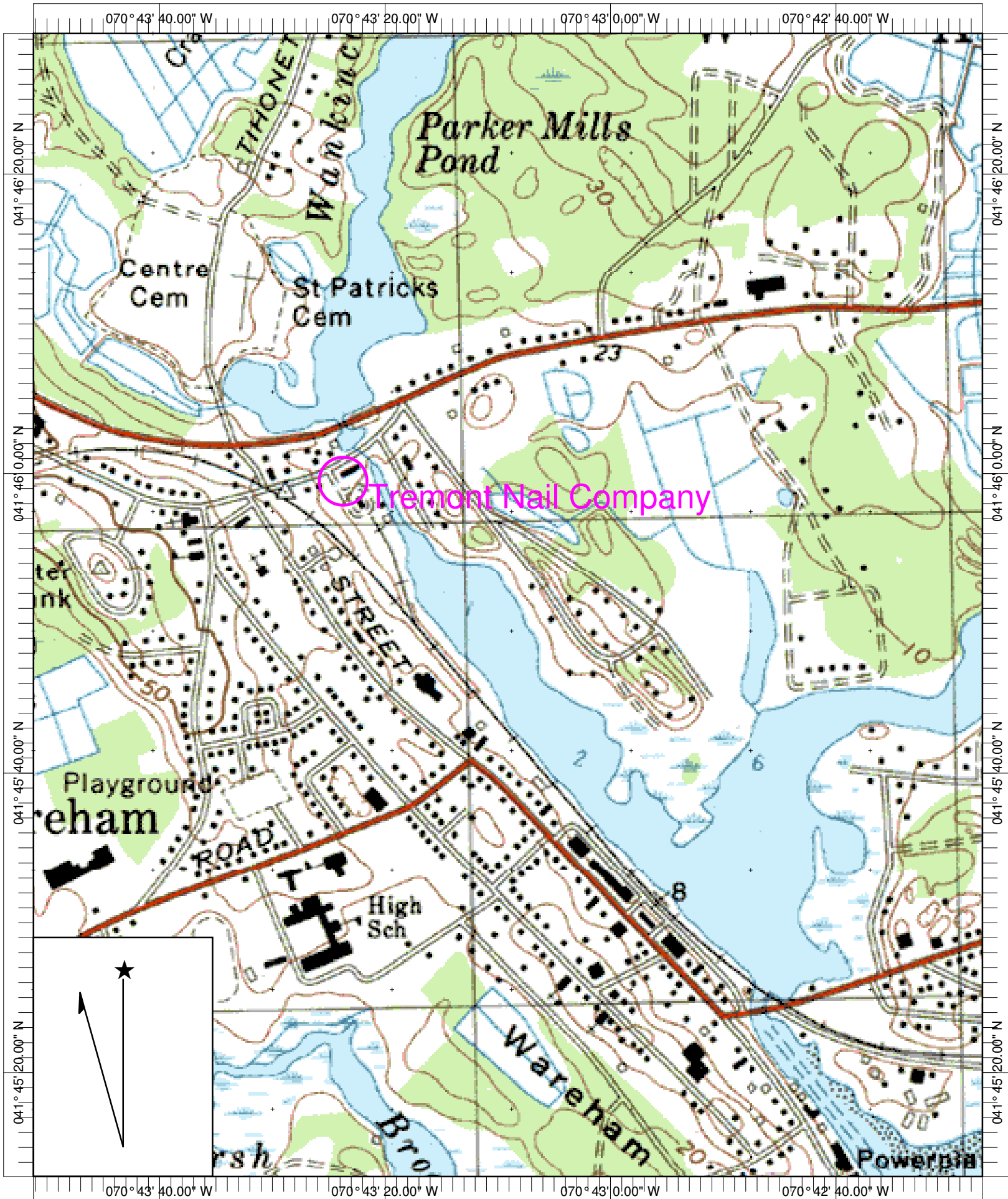
Wareham Sewer Department

- Any change or expansion of municipal sewer service to the site will need to be approved by the Wareham Sewer Department. If the change is substantial, the Wareham Board of Selectmen may need to approve the modification of sewer service to the site. The Sewer Department will evaluate the impact that the development may have on the existing sewer collection system and the municipal wastewater treatment facility.

U.S.EPA Construction General Permit

- Construction activities that disturb one acre or more are regulated under the NPDES stormwater program. On March 10, 2003, new regulations came into effect that extended coverage to construction sites that disturb one to five acres in size, including smaller sites that are part of a larger common plan of development. Operators of regulated construction sites are required to develop and implement a stormwater pollution prevention plan and file a Notice of Intent with U.S.EPA to obtain permit coverage. The stormwater pollution prevention plan will need to be prepared prior to the commencement of site disturbance activities.

APPENDIX A
USGS QUADRANGLE LOCUS MAP



Name: WAREHAM
 Date: 3/10/2009
 Scale: 1 inch equals 800 feet

Location: 041° 45' 51.2" N 070° 43' 09.1" W
 Caption: Tremont Nail Company
 Wareham, Massachusetts

APPENDIX A

APPENDIX B

SKETCH PLAN SHOWING EXISTING CONDITIONS

REVISION		DATE	NO.

SEAL	NO.	DATE

PROJECT	TREMONT NAIL COMPANY				7 ELM STREET WAREHAM, MA	SHEET TITLE	SKETCH PLAN SHOWING EXISTING CONDITIONS

PLAN REFERENCES:

PLAN OF EXISTING CONDITIONS PREPARED FOR TOWN OF WAREHAM COMMUNITY DEVELOPMENT, JOB #05-6413 BY C.A.F. ENGINEERING, INC. OF WAREHAM, MA DATED JUNE 1, 2005

PLAN FOR TREMONT NAIL FACTORY BY MENDERS, TOREY & SPENCER, INC. OF BOSTON, MA PROJECT # 0812.00 DATED JANUARY 15, 2009

FLOOD NOTE:

FLOOD ZONE AETIS AS SHOWN ON FEMA FIRM PANEL #255223 0008C REVISED AUGUST 4, 1987

NOTE:

THIS SKETCH PLAN HAS BEEN PREPARED BASED ON CURRENT INFORMATION AND IS FOR PLANNING PURPOSES ONLY.

LEGEND

- EXISTING
- BOUND
 - DRAIN MANHOLE
 - SEWER MANHOLE
 - EDGE OF WETLAND
 - FENCE
 - CONTOUR
 - FLOOD ZONE
 - EDGE OF RIVER
 - APPROXIMATE PROPERTY LINE

ZONING INFORMATION:

FOR WAREHAM VILLAGE DISTRICT WVI:

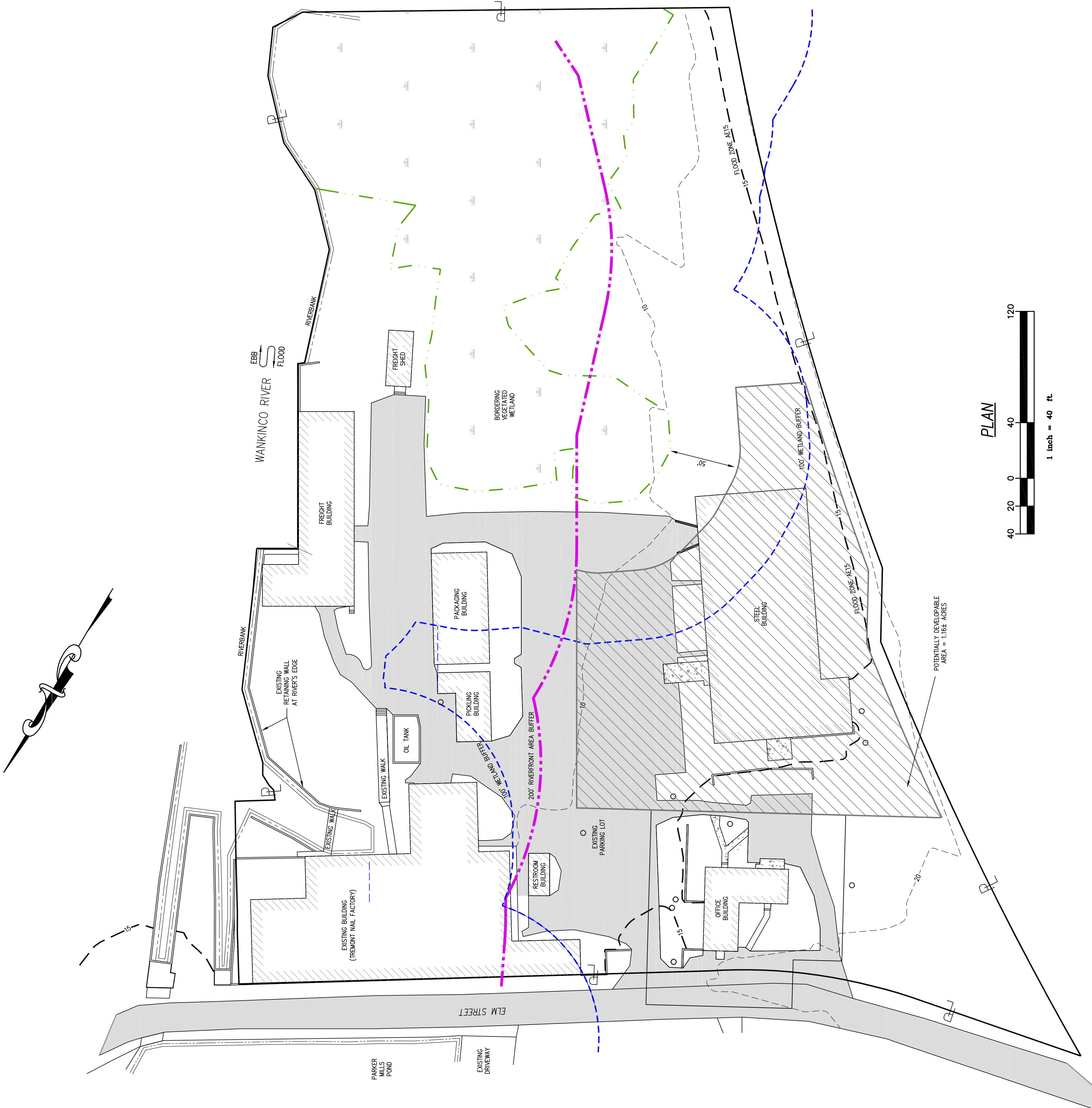
MINIMUM LOT AREA (SQ. FT.)
2,000 SQ. FT. FOR EACH ADDITIONAL UNIT
UP TO 40 UNITS AND 7,500 SQ. FT. FOR
EACH UNIT BEYOND 40.

MINIMUM FRONTAGE (FT.)
NONRESIDENTIAL USE - 75 FT.

MINIMUM FRONT SETBACK (FT.)
THE FRONT SETBACKS IN VILLAGE DISTRICTS SHALL BE THE AVERAGE OF THE SETBACKS OF THE (3) RESIDENTIAL STRUCTURES ADJACENT TO THE PROPERTY SIDE OF THE SUBJECT PROPERTY.

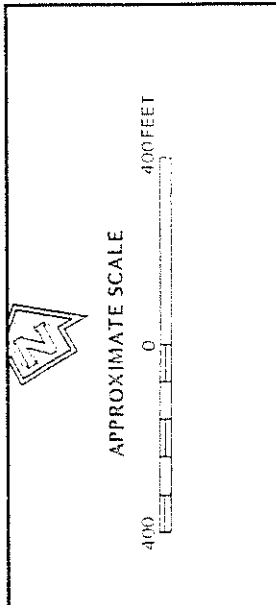
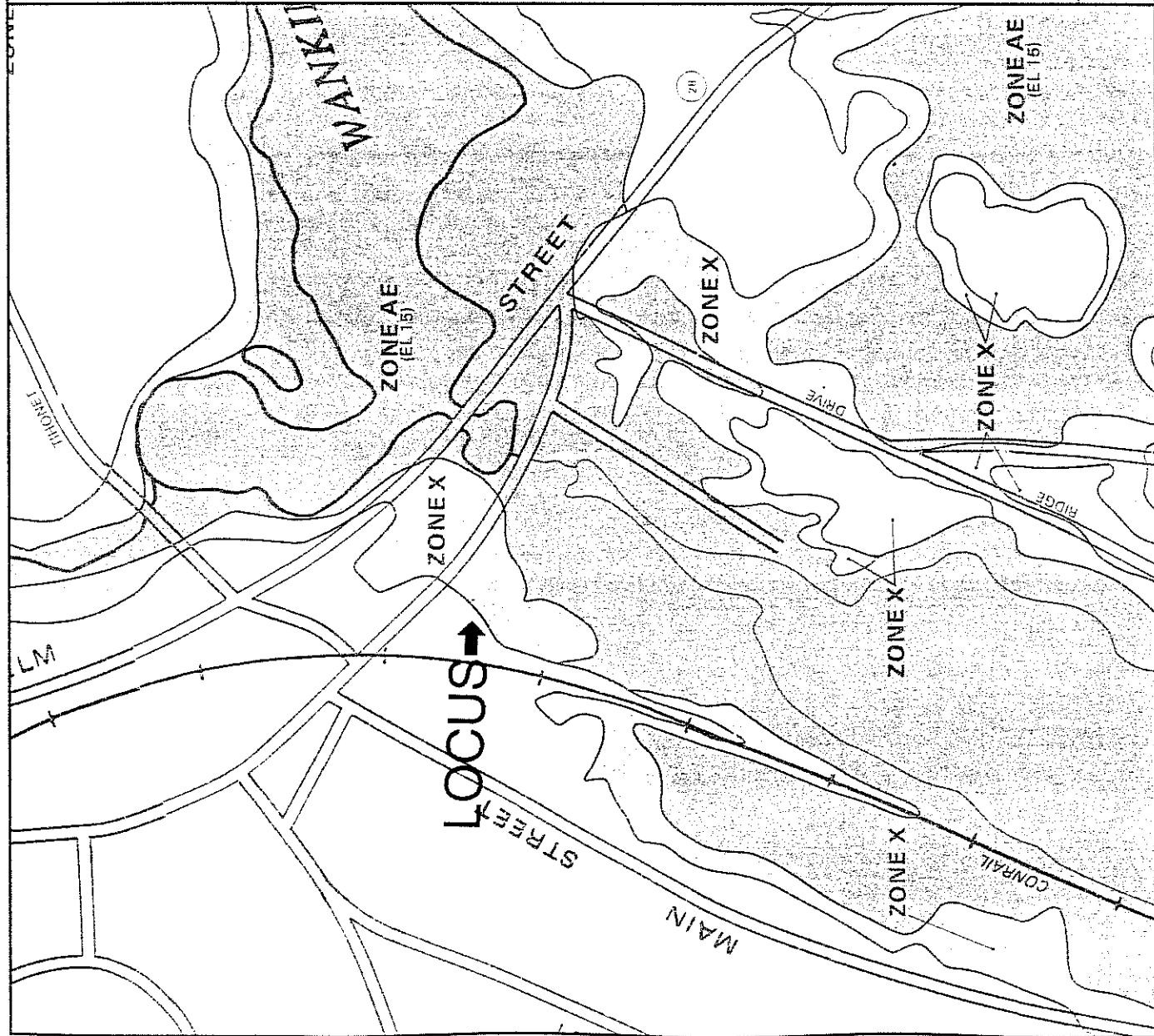
MINIMUM SIDE/REAR SETBACK (FT.)
NONRESIDENTIAL USE - 10 FT.
1-FAMILY DWELLING - 10 FT.
2-FAMILY DWELLING - 10 FT.
OTHER RESIDENTIAL USE - 20 FT.

MAXIMUM HEIGHT (FT.)
NONRESIDENTIAL USE - 40 FT.
MAXIMUM BUILDING COVERAGE (%)
30%
MAXIMUM IMPERVIOUS SURFACE (%)
70%



PLAN
1 inch = 40 ft.

APPENDIX C
FLOOD INSURANCE RATE MAP



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
WAREHAM,
MASSACHUSETTS
PLYMOUTH COUNTY

PANEL 8 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
255223 0008 C

MAP REVISED:
AUGUST 4, 1987

Federal Emergency Management Agency

THIS IS AN OFFICIAL COPY OF A PORTION OF THE ABOVE REFERENCED FLOOD MAP. IT WAS EXTRACTED USING F-MIT On-Line. THIS MAP DOES NOT REFLECT CHANGES OR AMENDMENTS WHICH MAY HAVE BEEN MADE SUBSEQUENT TO THE DATE ON THE TITLE BLOCK. FOR THE LATEST PRODUCT INFORMATION ABOUT NATIONAL FLOOD INSURANCE PROGRAM FLOOD MAPS CHECK THE FEMA FLOOD MAP STORE AT WWW.NFIP.FEMA.GOV

F. ADAPTIVE REUSE RESOURCES

Adaptive Reuse Resources

The following links and resources may prove useful as Wareham moves forward with plans to rehabilitate and reuse the Tremont Nail Factory site.

- [Historic American Buildings/Historic American Engineering Record \(HABS/HAER\) Photographic Documentation of Tremont Nail Factory \(1977\)](#)
- [Society for Industrial Archaeology](#)
- [Industrial Site Reuse Examples](#)
- [Smart Growth Strategy](#)
- [Rehabilitation Tax Credits](#)
- [Hydroelectric Energy](#)
- [Funding Resources](#)

**Historic American Buildings/Historic American Engineering Record (HABS/HAER)
Photographic Documentation of Tremont Nail Factory (1977)**

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

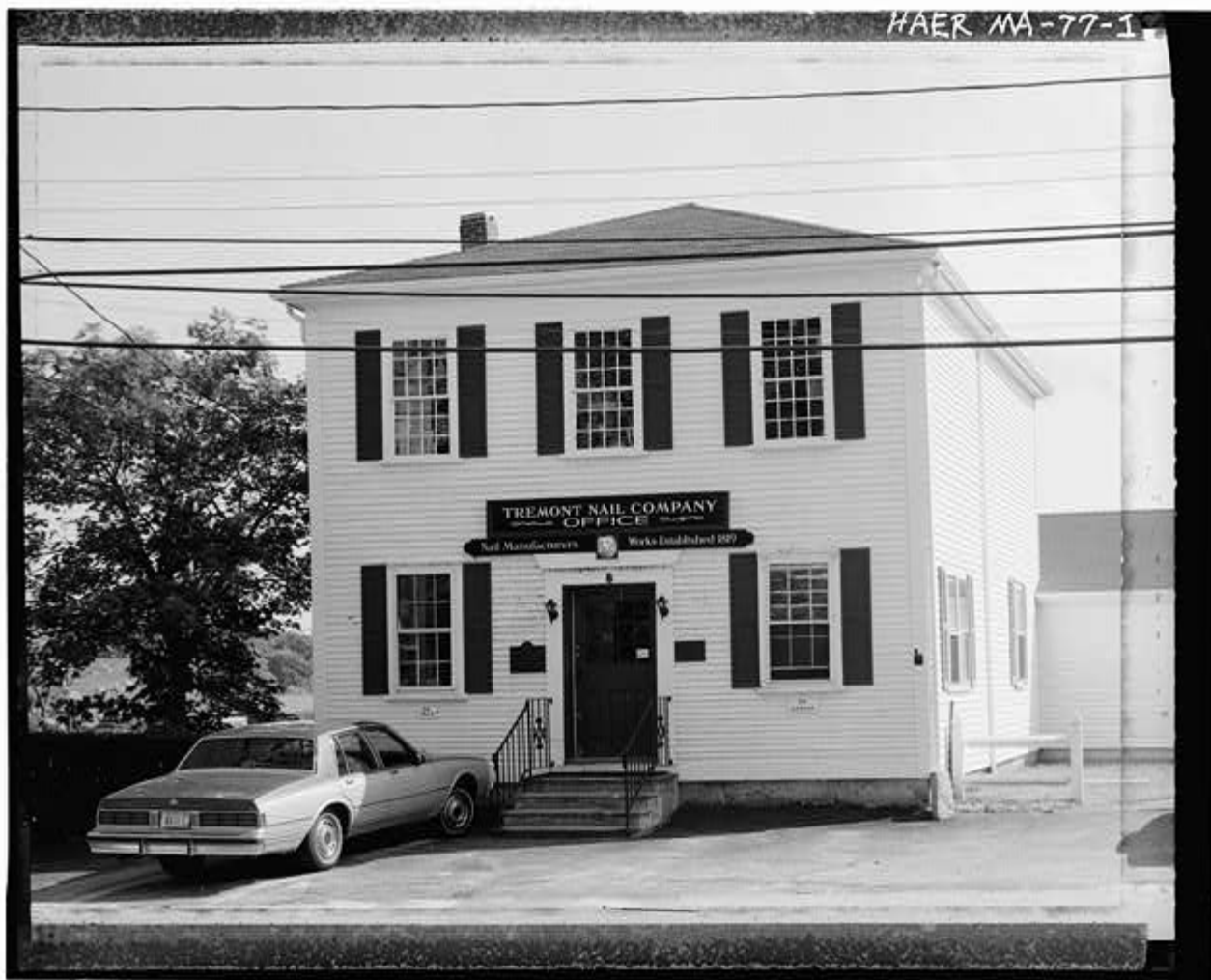
HAER
MASS.
12. WARH,
2 -

TREMONT NAIL COMPANY
21 Elm Street
Wareham
Plymouth County
Massachusetts

HAER NO. MA-77

photographer, Martin Stupich, September 1987

- MA-77-1 MAIN OFFICE, NORTH FACADE, VIEW TO SOUTH
- MA-77-2 MAIN SHOP, VIEW TO EAST
- MA-77-3 GENERAL OBLIQUE VIEW OF MAIN PLANT FROM PUBLIC ROADWAY, VIEW TO SOUTHEAST
- MA-77-4 GENERAL VIEW FROM CREEK TO MAIN MANUFACTURING BUILDING, VIEW TO NORTHWEST
- MA-77-5 GENERAL VIEW FROM EQUIPMENT SHED TO MAIN BUILDING GROUP WITH MOBILGAS PUMP
- MA-77-6 INTERIOR, GENERAL VIEW OF NAIL CUTTING MACHINES
- MA-77-7 DETAIL, NAIL CUTTING MACHINES
- MA-77-8 DETAIL, SINGLE NAIL CUTTING MACHINE
- MA-77-9 DETAIL, PULLEYS AND LEATHER DRIVE BELTS

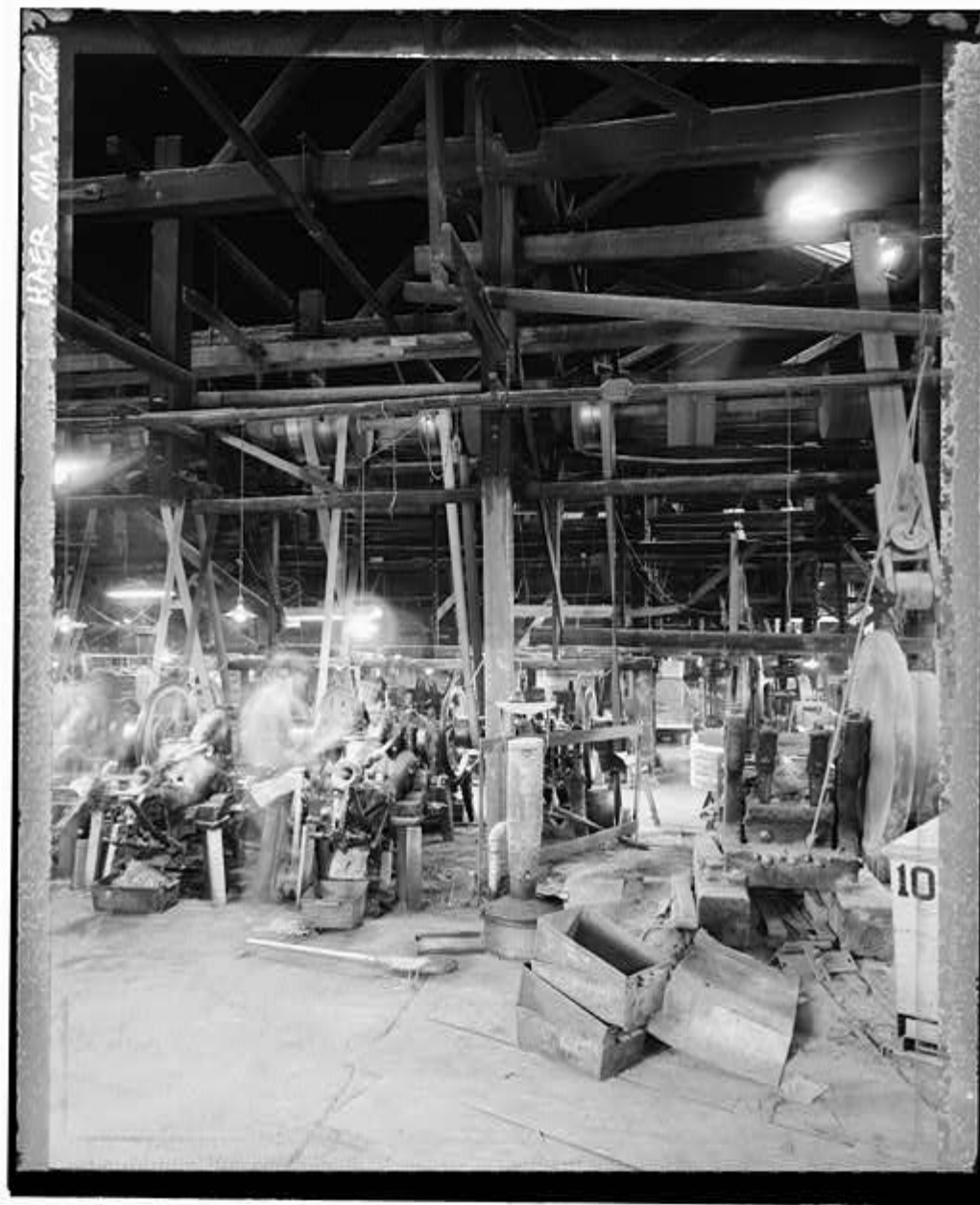
















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SOCIETY FOR INDUSTRIAL ARCHEOLOGY

The SIA is made up of members, world-wide, who have a strong interest in preserving, interpreting and documenting our industrial past and heritage. Whatever your profession or favorite pursuit, if you share our interest in the industrial past, we welcome you to join us.



[Photo Album - Chattanooga Fall Tour](#)



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[European Route of Industrial Heritage](#)

The www.sia-web.org home page & web site are hosted by Michigan Technological University, [Department of Social Sciences](#), the www.siahq.org web site is hosted by [PastyNET](#).

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Society for Industrial Archeology



THE INTERNATIONAL COMMITTEE FOR THE
CONSERVATION OF THE INDUSTRIAL HERITAGE

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Society for Industrial Archeology

E-mail: sia@mtu.edu

Tel.: 906-487-1889

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Our Mission

The mission of the Society for Industrial Archeology (SIA) is to encourage the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts, and technology. By providing a forum for the discussion and exchange of information, the Society advances an awareness and appreciation of the value of preserving our industrial heritage.

The Society for Industrial Archeology was formed in 1971 to promote the study, appreciation, and preservation of the physical survivals of our industrial and technological past. The word "archeology" underscores the society's principal concern with the physical evidence of industry and technology-the study, interpretation, and preservation of historically significant sites, structures, buildings, artifacts, industrial processes, bridges, railroads, canals, landscapes, and communities.

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The SIA is a nonprofit, international, interdisciplinary organization that brings together people of varied backgrounds who share a common interest in the archeology of industry, engineering, and technology in general. Our diverse membership is our greatest asset. It includes architects, archeologists, engineers, industrialists, museum specialists, planners, historians, preservationists, teachers, students, retirees, and many non-professionals for whom industrial archeology is an exciting avocation.

What We Do

With headquarters at the Department of Social Sciences at Michigan Technological University in Houghton, Michigan, the SIA is the North American forum for those who share an interest in industrial archeology. Through the organization's four principal activities-an annual spring conference, an annual fall tour, semiannual journal, and quarterly newsletter-SIA members share their knowledge and raise awareness of the value of preserving the physical evidence of industry and technology.

The society's annual conferences and fall tours are held in various cities and areas of the United States and Canada having a significant legacy of industrial activity. Both activities feature field trips to industrial and engineering sites of interest, including "process tours" of still-active plants not normally open to the public.

In addition to our regular programs and activities, the SIA makes annual awards for distinguished contributions to the field, sponsors occasional international study tours as well as awarding historic preservation grants. Local SIA chapters also offer programs and publications of regional interest.

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[History of Conferences since 1971](#)

[Fall Tour](#)

[Rosendale Fall Tour \(2009\)](#)

[Member Photo Album - Chattanooga 2008 Fall Tour](#)

[History of Fall Tours since 1972](#)

[Study Tour](#)

[History of Study Tours since 1990](#)

[SIA Policies](#)

[Tour Road Rules](#)

[Conference & Tour Refunds](#)

The Society for Industrial Archeology Annual Conference and Tours

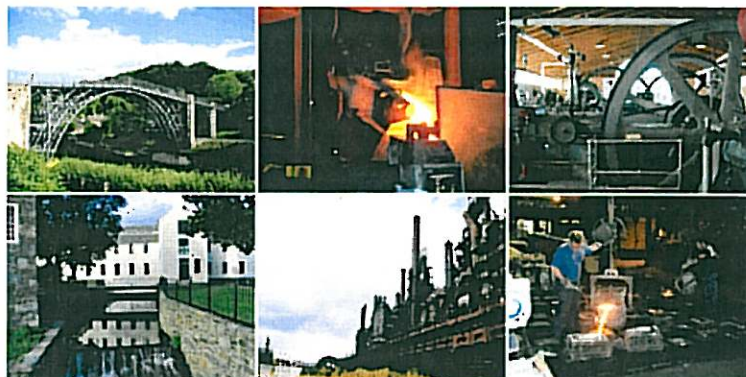


Society for Industrial Archeology

Email: sia@mtu.edu

Tel.: 906-487-1889

The SIA reaches across North America for traces of the industrial past. Each year, in different cities or regions with a significant legacy of industrial activity, the SIA holds a Fall Tour. Special IA Study Tours are arranged on an occasional basis worldwide. Central to all of these gatherings are special tours of contemporary and historic industrial sites and processes.



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[Historic Preservation Advocacy Policy](#) of the Society for Industrial Archeology (SIA)



Society for Industrial Archeology
Email: sia@mtu.edu
Tel.: 906-487-1889

The Society for Industrial Archaeology (SIA) has a stated interest in the preservation of our industrial heritage in its many forms and may choose to advocate for the preservation of significant historic industrial resources. With the aim of insuring that its advocacy is well founded and well-directed, the SIA Board of Directors (Board) has established a Historic Preservation Committee (Committee). The Committee will evaluate requests for SIA historic preservation advocacy according to the following guidelines and provide advisories to the Board for their action.

1. An advocacy request to the Board will only be considered for properties, artifacts and other heritage resources that have documented historical significance and integrity as those are defined by the National Register of Historic Places or a comparable national cultural resource agency. The request for advocacy must demonstrate that the resource is important at a national or regional level, though resources significant at a state level or, in exceptional cases, at a local level may be considered as well.
2. A request for advocacy must include a description on the status of the affected resource, the nature of the action or condition that threatens its preservation and the possible preservation options. Pertinent information to be considered includes the opinion of relevant historic preservation authority(ies), such as the State Historic Preservation Office, and experts in the area(s) in which the property's significance lies. The Committee will evaluate the appropriateness of SIA advocacy in each instance on the quality of the information provided above. The committee may chose to contact additional people, as appropriate.
3. The Committee will submit an advisory to the Board for each request that it evaluates. The advisory, accompanied by the pertinent documentation, will recommend what action, if any, it deems appropriate for the Board's consideration. The Board will make the final decisions on such actions.

Any person or organization requesting advocacy from the SIA must:

- Indicate their role and interest in making the request
- Explain why they believe that the intervention of the SIA would be beneficial.
- Identify who they wish the SIA to contact and why that person/organization has been identified. A contact address must be provided

The committee realizes that some situations requiring advocacy can be emergencies that requires fast action. The process described here will take several months. In exceptional cases the committee will endeavor to respond to crisis situation. The ability to do that will be based on the quality of information supplied and the ability of a volunteer committee to respond quickly. In emergencies the Board may be informed and polled via e-mail regarding decisions on advocacy.



Society *for* Industrial Archeology

SOUTHERN NEW ENGLAND CHAPTER

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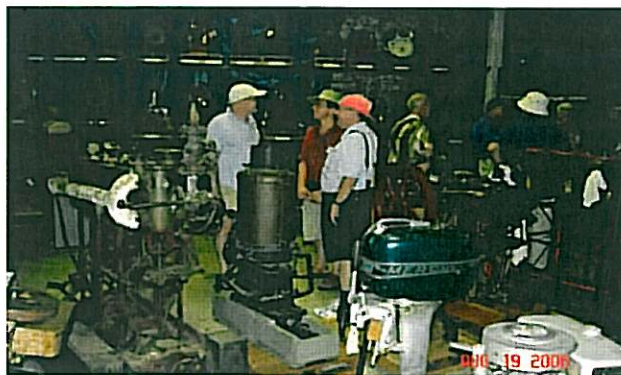
Exploring Southern New England's legacy as a pioneer in the Industrial Revolution, an innovator in engineering, and a wellspring for technological development and progress.

From the earliest textile mills along the Blackstone and Merrimack rivers to the iron furnaces in cranberry country and the armories along the Connecticut River, the three states of Southern New England have distinguished themselves as centers of pioneering industrial effort. Although the region is no longer a major industrial power, it is still rich with both the curious artifacts of its manufacturing past and to living enterprises — from brick works to paper mills to iron foundries and more — that continue to compete, struggle and sometimes thrive.

Today, the Southern New England Chapter (SNEC) of the **Society for Industrial Archeology** (SIA) keeps that legacy alive. Through our **chapter newsletter**, our **annual conference on New England industrial archeology** and, most importantly, our **exclusive tours** of industrial sites — most of them active, working factories otherwise inaccessible to the general public — we explore the places, lives and ideas of our industrial heritage.

SNEC members include engineers, architects, professors, archeologists, technicians, historians and the just plain inquisitive — people fascinated by machines, engines, steam, rail, iron, textiles, canals and more.

We invite you to explore our website. And if the smell of grease, the sight of red-hot steel and the din of working looms excite you, we encourage you to **become a member** and join us in our real-world explorations as well.



SNEC members get an exclusive, behind-the-scenes look at antique steam, gas and diesel marine engines stored at Mystic Seaport (August 19, 2006). Photo by Dave Laun.

© SNEC SIA

News and Upcoming Events

WATCH THIS SPACE FOR ANNOUNCEMENTS!

The National Model Railroad Association will be holding its national convention in Hartford July 5-11, 2009. Among the things of interest to IA types will be a presentation on marine railways by Michael Raber. More info at www.hn2009.org/home.html (5/14/2009).

The National Trust for Historic Preservation has added the Ames Shovel Shops in Easton, MA to its **List of Most Endangered Historical Places** (5/14/2009).

The Connecticut SHPO has revised its extensive **bibliography** (in MS Word format) of IA-related reports and documentation studies. Most of the reports are archived at the **Dodd Research Center**, University of Connecticut, Storrs. To make additional recommendations, contact **Dr. David Poirier**, Staff Archaeologist.

The National Park Service and American Rivers have issued a joint publication entitled **Dam Removal and Historic Preservation: Reconciling Dual Objectives** (4/16/2009).

The National Register has issued **policy guidance** regarding Integrity Requirements for locomotives and rolling stock (4/9/2009).

Industrial Site Reuse Examples

Case Studies in Part 3 of this Report:

Central/Stanley Woolen Mill, Uxbridge, Massachusetts
Old Schwamb Mill, Arlington, Massachusetts
Seneca Glass Company, Morgantown, West Virginia
Slade Spice Mill, Revere, Massachusetts
Wheeling Artisan Center, Wheeling, West Virginia
Frye's Measure Mill, Wilson, New Hampshire
Montague Bookmill, Montague, Massachusetts

Other Examples:

Assabet Mills/Clock Tower Place, Maynard, Massachusetts
Codman Shoe Factory, Rockland, Massachusetts
Emerson Shoe Company/Emerson Shoe Lofts, Rockland, Massachusetts
Historic Harrisville, New Hampshire
Oella Mills/Residences at Oella Mills, Ellicott City, Maryland
Schroeder Saddletree Factory Museum, Madison, Indiana
Shirley Shaker Mill, Shirley, Massachusetts
Slater Mill, Pawtucket, Rhode Island
Simon Pierce, the Mill Restaurant, Quechee, Vermont
Stonington Commons, Stockbridge, Connecticut
Walker Body Company /Residences at Riverwalk, Amesbury, Massachusetts
Wamsutta Mills/Lofts at Wamsutta Place, New Bedford, Massachusetts



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Rockland agrees to Codman building redevelopment plan

By Andrew Lightman

The Patriot Ledger

Posted May 22, 2008 @ 08:36 AM

ROCKLAND — The Codman building can be redeveloped into a 130-unit apartment building.

The planning board voted Wednesday night to approve the project, known as the Residences at Emerson Shoe. It will be the first of its kind under a year-old zoning bylaw that allows developers to build housing in the town's old factories.

"We've worked hard," said planning board member Donald Cann. "It wasn't easy for us, but we hope it works out well."

The planning board's unanimous decision grants a special permit and a site plan for the reuse of the old shoe factory, proposed by developer Fred Kiley of the Heritage Companies.

Seven weeks ago, the project was nearly defeated when the planning board voted to limit the project to 102 apartments.

The board reconsidered and then agreed to 131 homes, which includes a historically significant home on Maple Street, after Kiley's attorney, David Manoogian, threatened a long and costly lawsuit.

With 130 apartments, the factory would be 17 percent undeveloped but still profitable to the developer. The unused portion would be converted into storage space or a workout area, Manoogian said.

Kiley must obtain a parking waiver from the zoning board before he can seek his building permit from the town.

The waiver would exempt the project from a new parking bylaw, approved by town meeting May 5, that requires three parking spaces per unit in a multifamily home. Two parking spaces per unit was required under the old bylaw.

Without the waiver, Kiley would have to apply to build a three-story parking garage behind the factory. A two-story parking garage, Rockland's first, was included in the site plan approved by the planning board Wednesday.

Residents of Grove, Monroe and Maple streets have been critical of the redevelopment plan because of its traffic impact. In a recent letter to the planning board, the neighbors endorsed the 130-apartment plan, but only if the town imposed new traffic controls and rejected the parking garage.

Andrew Lightman may be reached at alightman@ledger.com.

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Simple, Modern living in Rockland MA

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Welcome to Emerson Shoe Lofts

Emerson Shoe Lofts, located in Rockland MA is located in the former Emerson Shoe Factory Building, once a staple to the thriving shoe manufacturing business in Rockland and the U.S. Choose from 1 and 2 bedroom apartments, with high end features such as granite countertops and stainless steel appliances. Rents range from \$1000 to \$1450 a month, for 664 to 1220 sq. foot apartments. Enjoy access to a private fitness center and indoor pool, both onsite. On site storage is available, as well as covered parking.



Now Touring, occupancy scheduled for Mid June.

Call 781-878-1100 | OFFICE HOURS: Mon, Tues, 4-7pm, Wed, Thurs 10-7pm
Fri 11-6pm, Sat and Sun 10am-4pm. Or By Appointment.

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HISTORIC HARRISVILLE INC.

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The Harris Family

Abel Twitchell House
Bethuel Harris House
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C.C.P. Harris House
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J. K. Russell House
Vestry
Congregational Church
Island Cemetery
Milan Walter Harris House
Harris Mill & Boiler House
Harris Storehouse
Harris Boarding House
Sorting & Picker House
Harris Tenements
Harrisville General Store

Cheshire Mills

Cheshire Mill No.1
Cheshire Mill No. 2
Boarding House
Cheshire Mills Cottages
Peanut Row
St. Denis Catholic Church

Historic Harrisville, Inc. is a nonprofit public foundation which owns the core mill buildings within the textile mill village of Harrisville, New Hampshire. In 1971, the National Park Service designated this two-acre historic district to be a National Historic Landmark.

History of the Foundation

The closing of Cheshire Mills in 1970 caused many residents of Harrisville and the surrounding area to ask what would happen to this beautiful village, which architectural historian William Pierson considers "the only industrial community of the early nineteenth-century in America that still survives in its original form."

Townpeople and preservationists joined together to form Historic Harrisville, Inc., whose goal was to preserve the integrity of the village, not as a museum but as a working community. Their preservation techniques were highly innovative: adaptive reuse of the buildings, a system of legal preservation covenants, historic district legislation, and revolving loan funds for restoration. Renovating the old buildings and leasing them to businesses created a new economic base for the town and made the buildings self-supporting both as workspace and affordable housing.

Mission

The mission of Historic Harrisville, Incorporated, is to preserve and foster the quality, beauty, and historical significance of the village and the environment and way of life of Harrisville.

Goals

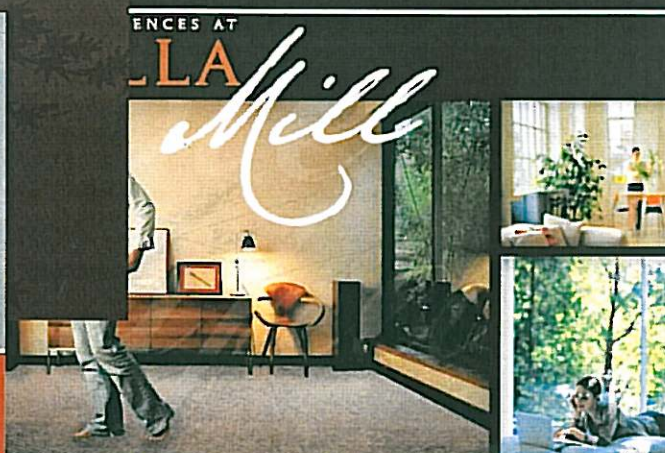
In carrying out its stewardship role, HHI has the following goals, adapted from those set forth in the original plan of 1971:

1. To maintain the essential character of Harrisville as a small, quiet, relatively remote village where people live and work in a healthy environment.
2. To sustain the vitality of the local economy, which must continue to provide employment and a tax base for the town.
3. To encourage the continuation of the town's strong textile tradition.
4. To promote the restoration, maintenance, preservation, energy efficiency, and use of the buildings in the Historic District.
5. To maintain and manage the properties belonging to HHI in a way that is consonant with their historical importance, use, and value to the people of the town.
6. To sustain and improve housing opportunities for those who work in the village.
7. To promote the protection of open spaces around the perimeter of the mill village and in other historic parts of Harrisville.
8. To work with the Town of Harrisville to ensure that development follows the principles set forth in the town's Master Plan.
9. To further the understanding, interpretation and appreciation of life in Harrisville, past and present; to foster community spirit.
10. To re-establish the energy independence of the village.

Contact

Historic Harrisville, Inc.
P.O. Box 79
Harrisville, NH 03450
603-827-3722
historicharrisville@msn.com





Welcome to Oella Mill

They don't build 'em like this anymore.

Incredible apartment homes are still available. Claim yours today!



Oella Mill's 147 distinctive apartment homes represent a one-of-a-kind opportunity to live in modern luxury with genuine historic ambiance.

Oella Mill is more than just a name. This beautiful 1918 building was once the largest textile mill in the country. Now The Residences at Oella Mill is an ensemble of incredible rental apartment homes that combine the best of old and new. The historic industrial structure has been carefully preserved and restored, while being outfitted with all the latest features and amenities, materials and finishes that define the modern luxury apartment community.



Perched above the rapids of the Patapsco River, Oella Mill is within easy walking distance of historic Ellicott City, Maryland, whose quaint streets brim with coffee shops, bakeries, restaurants, antique stores, and more. And Oella Mill is just off Route 29 and I-95, only eight miles from Baltimore, five miles from Columbia, and a short drive from Washington, DC.

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Oella Mill

Oella

Oella is the classic American factory town. Named for the first woman to spin cotton in America, Oella has a long history of milling operations since colonial times. In fact, the present red brick structure called Oella Mill is the newer buildings in town, dating from 1918. Rowhouses built for the millworkers, several sizeable family homes, and the old Oella Methodist Church, now converted to office space, are all of 19th-century vintage. And the original mill race that brought the Patapsco's waters to work the mill was built in the early 1800s. The 1.75-mile mill race was the longest in America to power a single mill, and, though damaged by Hurricane Agnes in 1972, it still exists today.



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The handsome building that stands today as Oella Mill was the William J. Dickey & Sons Textile Mill, which had been built on the ashes of the old Union Manufacturing Company mill, at one time the largest cotton mill in America. Dickey & Sons survived fire and flood and the Great Depression, but it could not overcome the shift to synthetic fabrics in postwar America. The mill had shut down shortly before Agnes hit, and was never to open again. It would take the combined efforts of private developers and county, state, and federal agencies over several years to bring new vitality to picturesque Oella, a town that is a genuine piece of America's past.

Oella and nearby Ellicott City are the heart of the Patapsco River Valley, one of America's first and most important centers of industry. In the Revolutionary War and the War of 1812, the former colonies had declared their philosophical and political independence. To take its place as an equal among the nations of the world, however, the young country needed to establish its economic independence. Rather than simply being a supplier of raw materials to the Old World and a market for European products, America sought to nurture manufacturing of various kinds on its own soil. Close to the thriving port of Baltimore, the Patapsco River provided a convenient and reliable source of power to operate numerous foundries, iron mills, textile factories, and paper mills.

The entrepreneurial spirit that built Oella and neighboring towns also powered America's geographic and technological growth. From here, the Baltimore & Ohio railroad, the nation's first, linked the East Coast and the heartland. Today, the mills and factories that once defined this valley have all but disappeared. But many of the stalwart buildings remain, reminders of earlier chapters in the long story of these wooded hills—a story that continues into a bright tomorrow as people rediscover the enduring pleasures of living in a place like Oella.

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View All Southern Management Communities



Slater Mill Named 2009 Editors' Choice for "Best History Escape" in Rhode Island by Yankee Magazine

Check out Classes, Workshops & Meetings at Slater Mill's Community Guild Studios

Fall class schedule is in the works!

Pawtucket Farmer's Market at Slater Mill

Come welcome Farm Fresh RI and the Pawtucket Summertime Farmers Market to Slater Mill along the banks of the Blackstone River.

- We invite you to join us each Sunday from 12-3PM, June 7-October 25, 2009.

Studio Rental

- You can rent studio space in our Jencks Education Center in the historic Slater Mill.

Welcome Summer at Slater Mill

Come celebrate with us as we Welcome Summer at Slater Mill!

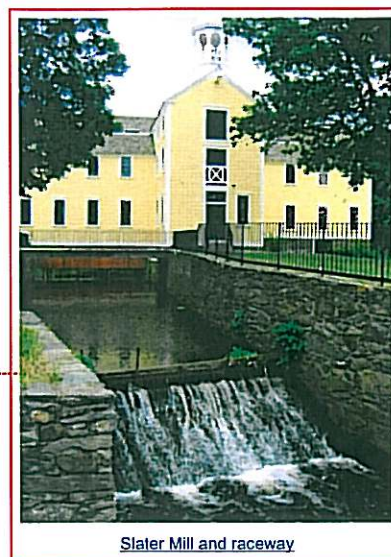
- We invite you to join us for our 3rd annual *Welcome Summer at Slater Mill* party and fundraiser sponsored by Narragansett Bay Insurance Co. Come enjoy festive music, light fare from local restaurants, wine & beer and raffle prizes.
- **Date:** Thursday, June 25th
- **Time:** 5-7PM
Join us at 4:30PM to hear an update on What's Happening at the Mill.
- **Ticket price:** \$20.00 suggested donation
Please reserve your ticket by June 20th. Undecided? Tickets also available at the door.
- To reserve your tickets or for more information call 401.725.8638.
- **Sponsored by:** Narragansett Bay Insurance Co.

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- Planning a wedding, rehearsal dinner or bridal shower? Let Slater Mill host your special event! Our historic landmark is the perfect setting for your wedding photos.

Office hours: Tuesday-Friday 9AM-5PM

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Slater Mill and raceway

67 Roosevelt Avenue. Pawtucket, RI 02860

our directions / mapquest directions

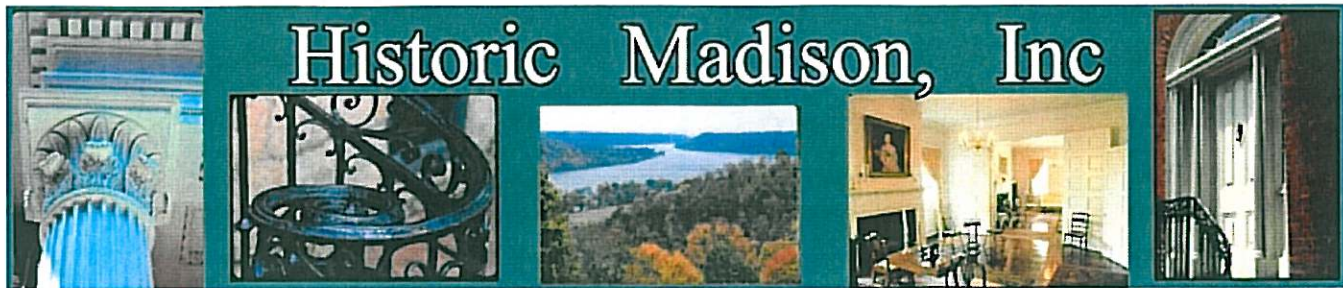
Content ©2009 Slater Mill Historic Site

May-October: Tuesday – Sunday 10AM - 4PM (closed Monday)

Design donated in part by Highchair designhaus

401.725.8638

info@slatermill.org



Ben Schroeder Saddletree Factory Museum
 106 Milton Street
 Madison National Register District
 Madison, Indiana

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Schroeder Saddletree Factory Museum

Windle Auditorium

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A.M.E. Church

Talbott-Hyatt Garden

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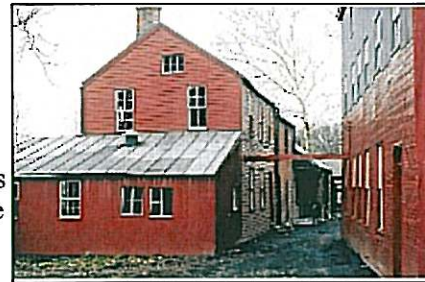
LINKS TO AREA WEBSITES



America's last 19th century saddletree factory stands suspended-in-time at 106 Milton Street in the Madison, Indiana National Register Historic District. For 94 years workers at the Ben Schroeder Saddletree Company crafted tens of thousands of wooden frames for saddle makers throughout the United States and Latin America. It was the nation's longest lasting, continually operated, family owned saddletree company.

John Benedict "Ben" Schroeder, a German immigrant, started his business in a small brick workshop in 1878, though it grew to include a woodworking shop, boiler room and engine shed, a sawmill, a blacksmith shop, an assembly room, the family residence and several outbuildings. After his death, Ben's family kept his dream alive by adding stirrups, hames for horse collars, clothespins, lawn furniture and even work gloves to their line of saddletrees. The factory closed in 1972 and was left completely intact.

Recognized by historians as one of America's premier industrial heritage sites, the Schroeder Saddletree factory has been restored to allow visitors to Madison to tour through this vintage workplace. Belts turn and the original antique woodworking machines spin into action. Sawdust is whisked from machines into the boiler room, where it once fueled the steam boiler that powered the equipment. Saddletree patterns hang, cobweb covered, from the ceiling.



Demonstrations, tours, exhibits and special programs tell the story of Ben Schroeder's immigration to the United States and his family's role in our nation's transportation heritage.

Madison is a fitting place for this museum. At one time home to thirteen saddletree factories, this Ohio River community was recognized as a leading center of saddletree production. Hundreds of thousands of saddle frames poured out of Madison by steamboat and rail to all parts



of the globe during the late 19th century.



The Schroeder Saddletree Factory Museum is open to the public Mid-April through October, Saturdays-Sundays 1-4:30 and Mondays 10-4:30. The last tour begins at 4:00. Admission charged.

The Schroeder Saddletree Factory Museum is one of 16 historic properties owned and operated by Historic Madison, Inc., a non-profit organization dedicated to education, promotion and assistance in preservation and restoration of historic resources which protect our heritage and enhance the quality of life in Madison, Indiana. For additional information contact: Historic Madison, Inc., 500 West Street, Madison, Indiana 47250; (812) 265-2967; hmihmfi@seidata.com.

Historic Madison, Inc. Preservation Timeline

1962

Second Presbyterian Church building is purchased at the corner of 3rd and West Streets Talbott-Hyatt House presented to HMI

Residences at RIVERWALK Amesbury

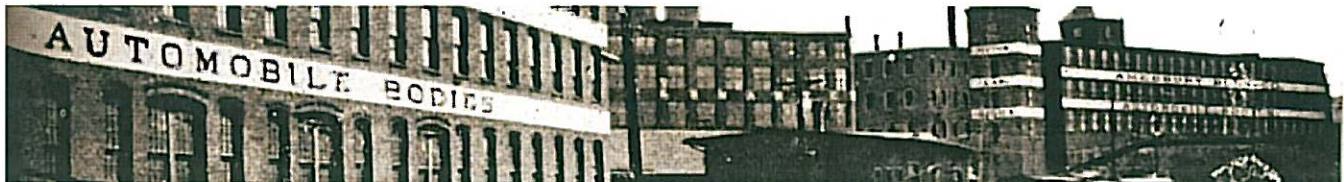


HISTORY Within The Walls

Since the mid-19th century, these mill buildings have helped shape the town's past.

The role of these mills – known in the heydays of the mid- to-late 1800's as home to carriage makers, most notably the Walker Auto Body and the Spofford and Smart Factory – is well documented in Amesbury's history. The mills formed the backbone of the town's thriving industries driven by the Powwow River and built a cooperative cadre of craftsmen and artists that is still alive and celebrated today. The buildings retain the lines of historic character and have earned the distinction of being nominated to the National Register of Historic Places.

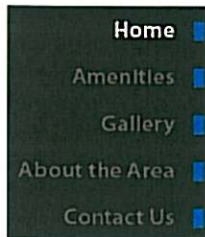
Residences at Riverwalk consists of eighteen spacious apartments at Twenty-four Oak Street, a brick mill building originally constructed in 1885 and sixty-nine elegant apartments at One River Court, a wooden mill building constructed in 1918. These unique apartment homes offer a blend of history and elegance with interiors that are stylishly modern in a historic setting.



One River Court ★ Amesbury, MA 01913 ★ leasing@riverwalkamesbury.com ★ 978.834.0900

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 **EQUAL HOUSING OPPORTUNITY**



Welcome to The Lofts at Wamsutta Place

This beautiful mill building has been converted to luxury loft style apartments and outfitted with modern amenities. Original maple floors have been preserved throughout as well as the high windows unique to this historic mill.

Wamsutta Place is a historical building which once was the home to the Wamsutta Linen Company. World famous percale sheets were manufactured here that supplied the world's finest hotels and the French Line's flagship, The Ile de France with sheets and pillow cases.

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Mills churn out housing, offices

The Boston Globe

Lured by historic character and tax credits, developers flocking to reuse former factories



Wallham's Watch Factory is on the banks of the Charles River. (Josh Reynolds Photo for The Boston Globe)

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By Ted Siefer

Globe Correspondent / July 20, 2008

It's been a long time since the din of spinning wheels could be heard from the Abbot Worsted Mill in Westford. But noise is again pouring from the 150-year-old textile factory: the growl of backhoes digging a football field-sized pit under the building, a future parking garage for 110 loft-style apartments.

- [PHOTO GALLERY](#) Two old mills being converted to housing
- [DISCUSS](#) Would you live in a converted factory?

Massachusetts, and many more of the state's 3,300 historic factories are being eyed for development, even as the region's housing market woes continue.

In fact, the trends may be connected. "The cost to acquire a vacant building is more favorable than hard construction costs for a new building today," said Larry Curtis, a managing partner of WinnCompanies, which recently began work on five mill projects. "The approval process is generally much easier than it is for getting something built from the ground up."

Developers have also been enticed by state and federal tax credits that allow them to deduct up to 20 percent of construction costs for historic rehabs. The ranks of applicants seeking the incentive have swelled since 2006, when the state tripled the amount it disburses in credits to \$50 million.

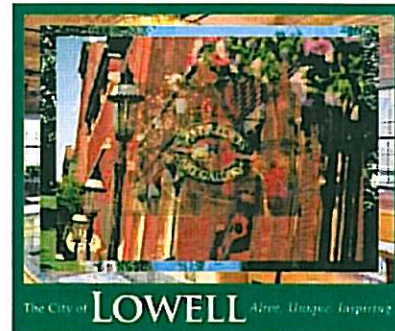
"We would not have been able to move forward without the tax credits," said Eric Ekman, project manager for Berkeley Investments Inc., during a recent

The Westford project is part of a new wave of mill redevelopment that is spreading beyond its epicenter in Lowell to the suburbs and gritty cities of the state's south coast. There are at least 45 mill projects underway around

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PHOTO GALLERY



[Former Beatles reveal 'Rock Band' game details](#)

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THE SEEN



tour of the Watch Factory in Waltham. Berkeley is transforming the 8.8-acre complex into 400,000 square feet of offices and condos.

The buildings have more than good bones. They are nestled along a wooded stretch of the Charles River and are within walking distance of the Waltham commuter rail station. The first phase of the project, set to be completed next May, will consist of 160,000 square feet of "brick and beam" office space.

Ekman said open floor plans and large windows, as well as landscaped courtyards, a gym, and a kayak rack, would appeal to companies seeking an inspiring place to work. Needless to say, these amenities are a far cry from the assembly lines of the 19th century, when the Waltham Watch Co. became the first to mass produce watches for the public.

"The creative industries, or even software companies, like an environment that spurs creativity," Ekman said. "They don't want a sterile workplace, with drop ceilings."

The Watch Factory reflects the crossover of the loft aesthetic. Artists were once the driving force - and market - for converted warehouses and factories. Who else would be willing to live in buildings never meant for human habitation? This was the case in Lowell and other factory towns on the Merrimack River, and the area remains a hotbed for mill projects. Only now, since few artists can afford to live in the new generation of buildings, "artist-style loft" is the preferred term.

"There is an element of hipness about these buildings," said John Schneider, executive vice president of the research institute MassINC, which is spearheading an effort to boost development in the state's second-tier "gateway" cities. "There is an effort to rebuild downtown neighborhoods and create more exciting urban space."

Civic leaders in these struggling cities have no intention of waiting for artists to discover their underused or vacant mills, monuments to bygone eras of industry.

Some of the most ambitious plans have been drawn up for New Bedford.

The 250-unit Wamsutta Mills, once a world-renowned textile factory, is slated for completion in the fall. It is part of a larger plan to transform the cluster of mills and warehouses along the city's waterfront into more than 700 units of housing and a shopping district.

It remains to be seen, however, whether loft-style apartments, even with ocean views and distant plans for commuter rail service, will be able to draw home-seekers from the Boston and Providence markets, a necessity in an area with one of the highest foreclosure rates in the state.

Other developers are taking "loft-living" to new frontiers - the suburbs.

"Residents here won't be living cheek-by-jowl next to other buildings," said Christopher Yule, the developer of the Abbot Mill in Westford.

And, he might add, the complex is within walking distance of the beach at Forge Pond.

Other suburban projects include the Emerson Shoe Factory in Rockland, which is being converted into 130 high-end apartments, and the Shaker Mill in Shirley, which will offer office and industrial space.

"Nothing nearby on the South Shore is comparable," said Michael Kiley, vice president of Quincy-based Heritage Cos., which is developing the shoe factory in Rockland. "These will be loft-style units with sand-blasted wood, exposed mechanicals, and high ceilings."

Not that transforming century-old factories into modern apartments has been

See Tom Brady and his best buddy in Bill Brett's photos

NOTABLE DEATHS



Notable figures who have passed in 2009

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- Horoscopes
- Real estate
- RECIPES Tacos
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Acknowledgements

The Executive Office of Energy and Environmental Affairs (EEA) is pleased to provide this Smart Growth/Smart Energy Toolkit on behalf of the Commonwealth of Massachusetts. This Toolkit provides easy access to information on planning, zoning, subdivision, site design, and building construction techniques that can make smart growth and smart energy a reality in your community. The materials are designed to increase understanding of smart growth/smart energy tools and policies, as well as how to customize and apply the techniques to suit local circumstances. The Commonwealth encourages communities to adopt and implement these smart growth/smart energy measures in order to realize the many environmental, fiscal, and social benefits of smarter energy and smarter land use.



[Click here to access Governor Patrick's Clean Energy & Smart Growth-Smart Energy webpage!](#)

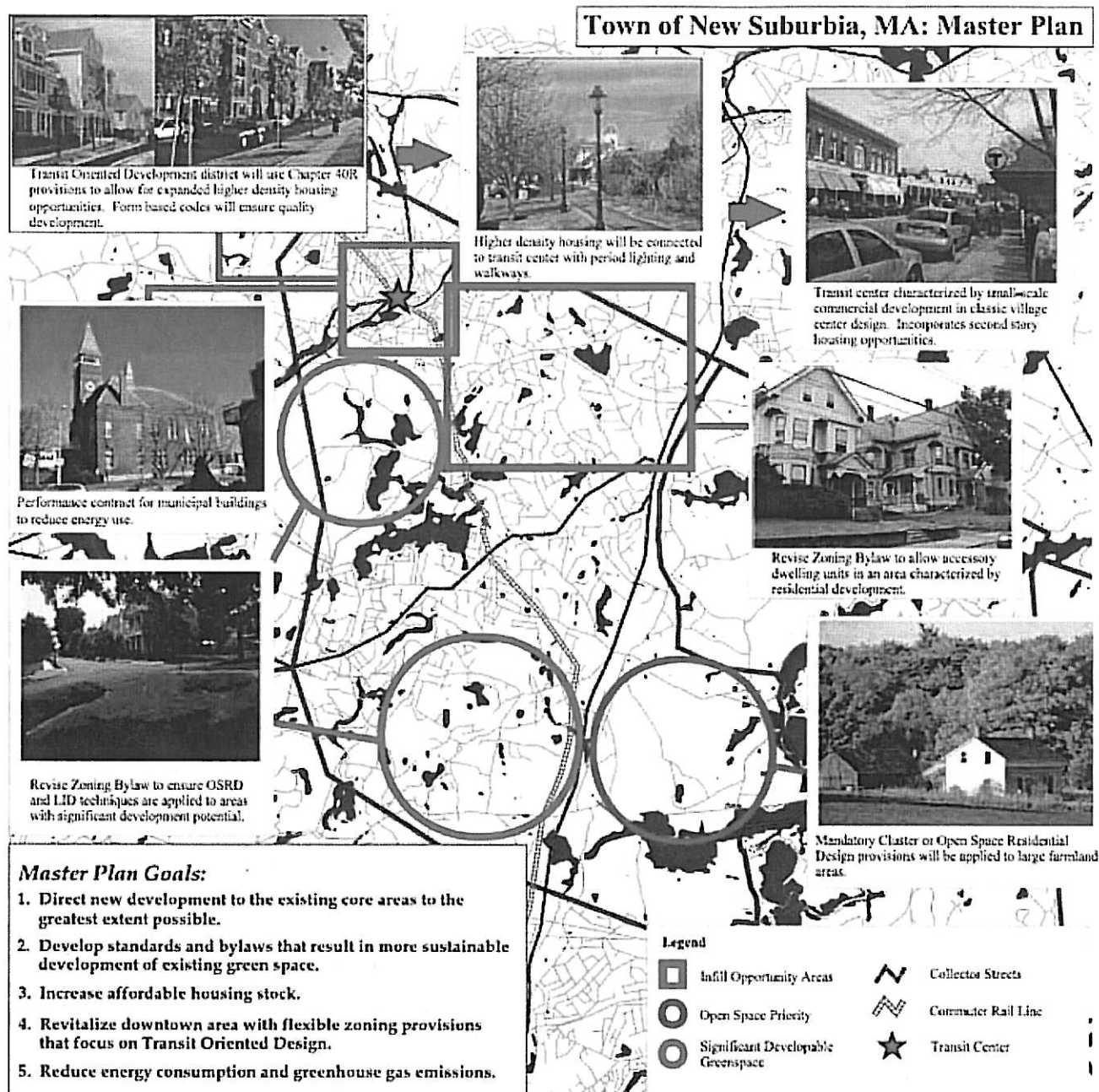
Integration of Smart Growth / Smart Energy into Comprehensive Planning

Planning - the importance of context to successful implementation of smart growth/smart energy techniques

Successful implementation of these measures will require planning. Adoption of any of the techniques included here will require customization, and communities should not simply copy and use model bylaws, either those provided here or found elsewhere, without modifications to address circumstances within the community. Ideally, users of this Toolkit will take a comprehensive approach. At a minimum, once a decision has been made to pursue implementation of a particular technique, such as open space residential design, community meetings will be needed to answer basic questions about how the model provided will be customized to meet local needs and goals.



Interactive Case Study Map



Municipalities have important choices to make when implementing any of these techniques including the areas within the community where a technique will be applied and the appropriate permitting authority and mechanism. To ensure that choices are made on the basis of a good understanding of citizen desires, communities are encouraged to plan in advance of, and involve the public prior to, implementing any of these techniques. Especially considering that a two-thirds vote at town meeting or by city council will be required for zoning approval, understanding or arriving at a consensus about community objectives and planning techniques is important early in the adoption process. Master, community development, open space, housing, transportation, capital facilities, climate action, and other types of plans all provide a foundation for reaching such consensus; the public process associated with planning greatly increases the odds of adoption.

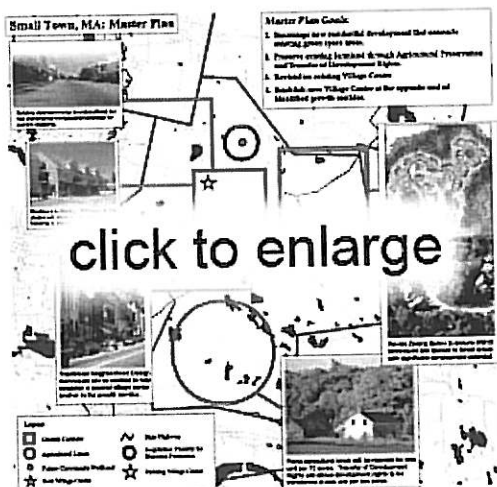


Comprehensive Planning
in the Urban Setting

Achieving Smart Growth / Smart Energy on the Community Scale

An important point that should be kept in mind when utilizing this Toolkit is that smart growth or smart energy objectives are unlikely to be accomplished via the passage and implementation of a single technique. While each technique in this Toolkit will achieve certain important goals, and move a community in the direction of smart growth and smart energy, a more comprehensive approach is likely to be necessary. Another reason to plan in advance of implementing the measures included in the Toolkit is to determine a mix of techniques necessary to achieve municipal goals. Included below are several typical scenarios illustrating how smart growth and clean energy initiatives often involve a long-term and multi-faceted campaign to realize a community's vision.

The Commonwealth of Massachusetts offers several incentives to implement smart growth/smart energy plans, regulations, and site and building designs. The Commonwealth Capital Policy provides financial incentive to communities to adopt clean energy practices and apply smart growth principles. MGL Chapter 40R provides incentive payments when "smart growth zoning districts" are adopted and, again, when building permits are issued. In addition, agencies of the Commonwealth, including the Department of Housing and Community Development and the Executive Office of Energy and Environmental Affairs, offer technical assistance.



Comprehensive Smart Growth Planning
in the Rural Setting

Smart Growth / Smart Energy Toolkit



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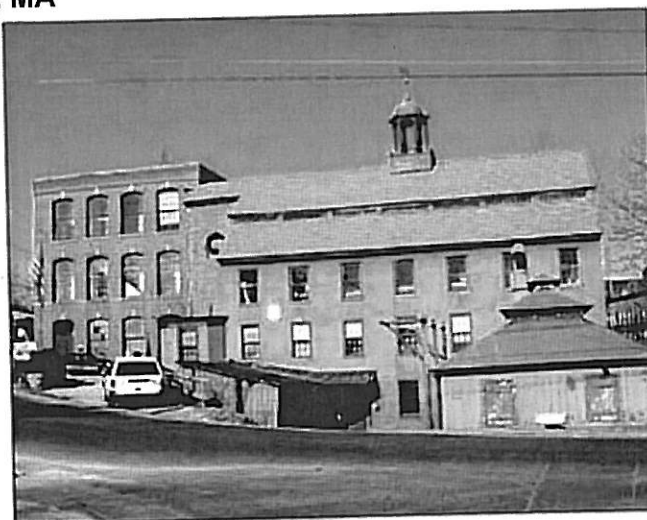
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The Mill Revitalization District Case Study

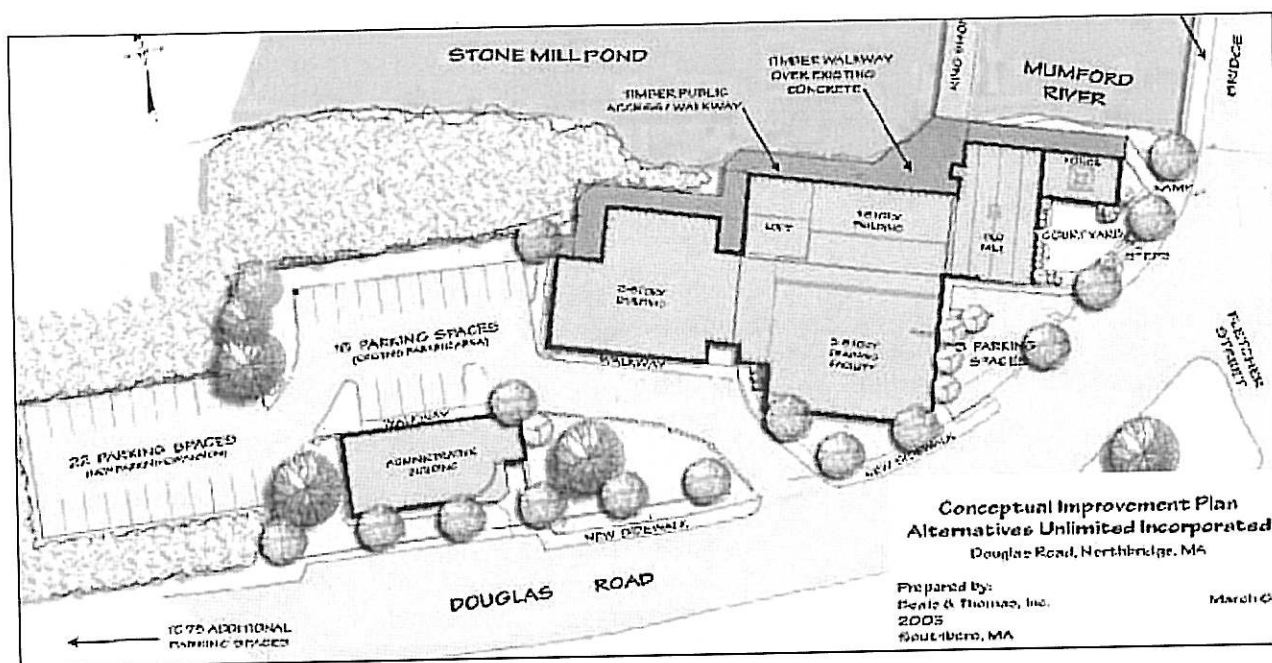
Whitin Mill Northbridge, MA

Northbridge, a suburban community of 6,300 residents, has a rich manufacturing history. Several industrial developments were erected along the riverbanks of the Blackstone and Mumford Rivers in the early 1800s.

The most notable of these early mill developments was the Whitin Mill in the village of Whitinsville. The majority of mill buildings in Northbridge are no longer used to their full potential, however, most continue to serve as important incubator spaces for small businesses. Aside from the mills, the Town prides itself on the character of its built environment, which reflects 1800s vernacular architecture.

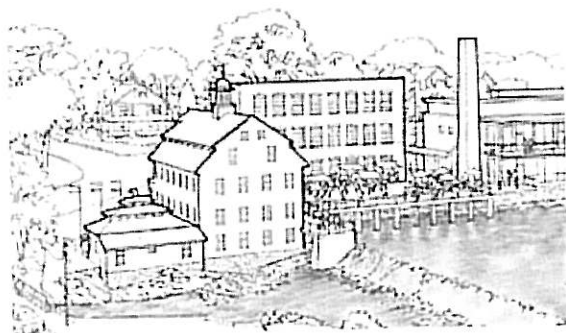


Original Whitin Mill building
Source: Alternatives Unlimited



Whitin Mill Redevelopment Plan, Northbridge, MA
Source: Alternatives Unlimited

The one-acre site contains a complex of five buildings totaling 36,570 square feet. The Whitin Mill, built by the Whitin family in 1826, is the oldest building on the site and has been designated as "one of the finest examples of Federal style mill architecture in the valley," by the Blackstone River Valley National Heritage Corridor. This mill was the cornerstone of the Whitin textile empire and at one point employed over 5,600 people. Many members of the surrounding communities have relatives who worked in the "Ring Shop" at the Mill well into the 1970's.



Renderings provided an important visual guide for the redevelopment process
Source: Alternatives Unlimited

The Whitin Mill site is currently being redeveloped by its owner, Alternatives Unlimited Inc., as a mixed use center to serve as artisan space, performance and conference space, a restaurant, a riverside community plaza, retail stores, a living museum, affordable apartments, and the program center for Alternatives Unlimited - an organization servicing people with disabilities. Alternatives developed its vision for the mill through engaging the community in an open charrette process. The mix of uses planned for the mill reflect the community's input as well as Alternatives' goal of expanding its own program space. Alternatives' Executive Director Dennis Rice calls the \$9.1 million redevelopment project "a new paradigm" in the integration of individuals with disabilities into the community through the creation of an inclusive community treasure. Funding sources for the project include affordable housing grants from the Community Development Assistance Corporation (CDAC), as well as extensive fundraising drawing from public and private sources. The project seeks to transform

real estate capital into social capital by creating a community magnet that will bring together diverse groups of people through its unique mix of uses.

Not only will the redevelopment enhance community objectives, it will also enhance environmental objectives through a commitment to smart energy technology. Alternatives Unlimited will draw the energy for the Whitin Mill from hydropower - the source of energy at the mill for many generations - as well as solar power from photovoltaic cells and power from geothermal heat exchange. This suite of renewable energy sources means that the Whitin Mill will be not only be energy self-sufficient, but will also be able to sell power back to the electric company. It is estimated that the green technology will result in \$100,000 in annual energy savings and sale of credits.

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Rehabilitation Tax Credits

Massachusetts Historical Commission

William Francis Galvin, Secretary of the Commonwealth

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Massachusetts Historic Rehabilitation Tax Credit

The Massachusetts Historic Rehabilitation Tax Credit is an exciting addition to the preservation toolkit. Under the program a certified rehabilitation project on an income-producing property is eligible to receive up to 20% of the cost of certified rehabilitation expenditures in state tax credits. There is an annual cap, so there are selection criteria that ensure the funds are distributed to the projects that provide the most public benefit. The MHC certifies the projects and allocates available credits.

Important Note

In order to be considered for allocation of funds, Part I and Part II must be submitted to the MHC by the application deadline. The deadlines each year are: April 30, August 31, and January 15. (Please note that the previous deadline of December 31 has been changed to January 15).

[Final Regulations 830 CMR 63.38R.1: Massachusetts Historic Rehabilitation Tax Credit \(pdf, 42k\)](#)

State Historic Rehabilitation Tax Credit Program Historic Preservation Certification Application

[Tax Credit Instructions \(pdf, 46k\)](#)

[PART 1 - Evaluation of Significance \(pdf, 15k\)](#)

[PART 2 - Description of Rehabilitation \(pdf, 37k\)](#)

[PART 3 - Request for Certification of Completed Work \(pdf, 64k\)](#)

[Continuation/Amendment Sheet \(pdf, 12k\)](#)

New! [MHC HRC Questionnaire Instructions \(pdf, 32k\)](#)

New! [MHC HRC Questionnaire Attachment \(pdf, 32k\)](#)

New! [Historic Rehabilitation Tax Credit Phased-In Projects \(pdf, 60k\)](#)

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830 CMR 63.38R.1: Massachusetts Historic Rehabilitation Tax Credit Corporate Excise

830 CMR: DEPARTMENT OF REVENUE

830 CMR 63.00: TAXATION OF CORPORATIONS

830 CMR 63.00 is amended by adding the following section:

(1) *Statement of Purpose, Effective Date*

(a) *Statement of Purpose.* 830 CMR 63.38R.1 explains the calculation of the historic rehabilitation tax credit established by M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R (St. 2003, c. 141, §§ 22, 24 and 82, as amended by St. 2004, c. 65, §§ 5-9, 13-18, 54). Under the statute, the Commissioner, in consultation with the Massachusetts Historical Commission, shall authorize credits annually, for the period and amounts allowed under M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R.

(b) *Outline of Topics.* 830 CMR 63.38R.1 is organized as follows:

- (1) Statement of Purpose; Outline of Topics, Effective Date
- (2) Definitions
- (3) Amount of Credit
- (4) Certification of Rehabilitation; Chosen Projects; Written Notice
- (5) Chosen Projects; Application of Criteria
- (6) Application Process and Administrative Fees
- (7) Transferability of Credit
- (8) Allotment of Credit Among Partners, Members or Owners
- (9) First Tax Year for Claiming Credit
- (10) Carryforward of Credit
- (11) Limitations on Credit; Ordering of Credit
- (12) Recapture
- (13) Authorization to Take Further Actions

(c) *Effective Date.* 830 CMR 63.38R.1 takes effect upon promulgation and applies to tax years beginning on or after January 1, 2005.

(2) *Definitions.* For purposes of 830 CMR 63.38R.1, the following terms shall have the following meanings, unless the context requires otherwise:

Certified rehabilitation, the rehabilitation of a qualified historic structure that has been approved and certified by the Chairperson of the Massachusetts Historical Commission as being consistent with the standards established by the Secretary of the United States Department of the Interior for rehabilitation of historic properties.

Chosen projects, projects which have received second certification under 830 CMR 63.38R.1(4)(b).

Code, the Internal Revenue Code of 1986, as amended and in effect for the taxable year.

Commission, the Massachusetts Historical Commission.

Commissioner, the Commissioner of Revenue.

Completed Projects, chosen projects which have received final certification under 830 CMR 63.38R.1(4)(c) and which have been substantially rehabilitated and placed in service.

Placed in service, this term shall have the same meaning as the term is given under section 47 of the Code and any federal regulations thereunder.

Project, any building or structure, submitted by the taxpayer to the Commission for certification of rehabilitation.

Qualified historic structure, any building or structure, located within the Commonwealth that is individually listed on the National Register of Historic Places or is a contributing building within a district that is listed on the National Register of Historic Places or has been determined by the Massachusetts Historical Commission to be eligible for listing on the National Register of Historic Places, and which all or any portion of which is owned, in whole or in part, by the taxpayer.

Qualified rehabilitation expenditure, any amount properly chargeable to a capital account and described in section 47(c)(2)(A)(i) of the Code, as amended and in effect for the taxable year, incurred in connection with the certified rehabilitation of a qualified historic structure, but the term shall not include personal property, personal use property or the cost of acquiring any building or interest therein.

Substantial rehabilitation and *substantially rehabilitated*, the qualified rehabilitation expenditures of the building during the 24-month period selected by the taxpayer ending with or within the taxable year exceed 25 per cent of the taxpayer's adjusted basis in such building and its structural components as of the beginning of such period. In the case of any rehabilitation that may reasonably be expected to be completed in phases set forth in architectural plans and specifications completed before the rehabilitation begins, the applicable period referred to in this paragraph shall be 60 months.

Taxpayer, a corporation or other entity subject to an excise imposed by M.G.L. c. 63 and a person, firm, partnership, trust, estate, limited liability company or other entity subject to the income tax imposed by M.G.L. c. 62.

(3) *Amount of Credit.*

- (a) *Calculation of Credit.* The credit shall be equal to a percentage, not to exceed 20 per cent, of the qualified rehabilitation expenditures made by the taxpayer with respect to a qualified historic structure which has received final certification and has been placed in service as provided for in 830 CMR 63.38R.1(9).
- (b) *Available Credit for Allocation.* The Commission shall determine and account for the amount of credit available for allocation. The amount available in any given year shall be equal to the sum of 1) the annual authorized credit amount for that year under M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R, 2) any recapture amounts, 3) any credit

amount previously allocated to a chosen project under 830 CMR 63.38R.1(3)(c), which is disallowed by the Commission upon final certification under 830 CMR 63.38R.1(4)(c), 4) any credit amount previously allocated to a chosen project under 830 CMR 63.38R.1(3)(c), which is disallowed by the Commission upon the Commission's determination that the chosen project cannot move forward due to financial infeasibility or other impediment or the chosen project is materially changed from its plans as submitted and approved by the Commission when allocated the credit under 830 CMR 63.38R.1(3)(c), and 5) any credit amount authorized but not allocated in a previous year. Upon the Commission's determination that the project cannot move forward under 830 CMR 63.38R.1(3)(b)(4), the Commission shall issue a written notice to the chosen project containing a statement of reason for the Commission's determination. In no event shall the total amount of credits allocated during any given year exceed the amount that is available for allocation as set forth in the paragraph.

- (c) *Allocation of Credit.* The Commission shall allocate the available credit among projects chosen to receive second certification. Each chosen project shall be allocated a percentage, not to exceed 20 per cent, of qualified rehabilitation expenditures as proposed and certified under 830 CMR 63.38R.1(4). The Commission shall apply the criteria set forth under 830 CMR 63.38R.1(5) and assess and prioritize each initially certified project within the deadlines set forth under 830 CMR 63.38R.1(6). After such assessment, the Commission may issue the second certification to one or more projects and allocate some or all of the available credit among such chosen projects.
- (d) *Credit Certificates.* The Commission may issue a credit certificate to a completed project on or after the date it issues the final certification as allowed under 830 CMR 63.38R.1(4)(c). In no event shall the total amount of credit certificates issued for any given year exceed the total amount of credits that are available to be allocated for such year, as set forth in 830 CMR 63.38R.1(3)(b).
- (e) *Examples.* The following examples illustrate the application of 830 CMR 63.38R.1(3).

Example 1. The annual authorized credit amount under M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R is \$15 million per calendar year for five years. In calendar year 1 the Commission issues to ten projects second certifications totaling \$11 million in allocated credits. The Commission will rollover into calendar year 2 the \$4 million of unallocated credits. Therefore, in calendar year 2 the Commission may allocate up to \$19 million in credits.

Example 2. The annual authorized credit amount under M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R is \$15 million per calendar year for five years. In calendar year 1 the Commission issues to ten projects second certifications totaling \$11 million in allocated credits and in calendar year 2 the Commission issues second certifications to twelve additional projects totaling \$17 million in allocated credits. Therefore, at the end of calendar year 2 the cumulative authorized maximum is \$30 million of which the Commission has allocated \$28 million. The Commission will rollover into

calendar year 3 the \$2 million of unallocated credits. Therefore, in calendar year 3 the Commission may allocate up to \$17 million in credits.

(4) *Certification of Rehabilitation*

(a) *Initial Certification.* An initial certification is the certification by the Commission that the structure meets the definition of a qualified historic structure.

(b) *Second Certification; Chosen Projects; Written Notice.* A second certification is issued by the Commission prior to construction, certifying that if completed as proposed, the rehabilitation work will meet the standards required for a certified rehabilitation. The Commission may issue a second certification during or after the construction process.

1. Projects which receive second certification are chosen projects. The Commission shall allocate some or all of the available credit among chosen projects as provided for in 830 CMR 63.38R.1(3)(c).

2. The Commission shall issue a written notice to applicants for second certification within such time as prescribed by the Commission. A chosen project shall receive a written notice of acceptance that contains a statement detailing the allocation of credit as determined by the Commission under 830 CMR 63.38R.1(3)(c). An applicant that is not chosen for second certification shall receive a written notice that contains a statement of reason for its not having been selected.

(c) *Final Certification.* A final certification is issued by the Commission when construction is completed, certifying that the work was completed as proposed and that the costs are consistent with the work completed. Such final certification shall be acceptable as proof that the expenditures related to such construction qualify as qualified rehabilitation expenditures for purposes of the credit allowed under M.G.L. c. 62, § 6J or M.G.L. c. 63, § 38R and this regulation.

(5) *Chosen Projects; Application of Criteria.*

Within the application schedule provided for in 830 CMR 38R.1(6)(a), the Commission shall assess each initially certified project's contribution to the significance of the area and the relative public benefit of its proposed rehabilitation to the Commonwealth by applying the following criteria:

(a) *Affordable Housing.* At least 25 per cent of the tax credits shall be allowed for projects that contain affordable housing whenever possible and consistent with the criteria set forth in 830 CMR 63.38R.1(5).

(b) *Preservation.* The extent to which historic, architectural or cultural preservation is achieved for the features and portions of the structure and its site and environment. In considering the extent of historic preservation, the Commission will review the project's utilization of traditional materials and technology and the retention of historic fabric. The project, when necessary, will be consistent with local and state planning priorities for development or protection. In addition, the Commission will consider the extent to which the project complements other state revitalization efforts. The Commission will give consideration to the level of historic significance as defined by the National Register of Historic Places.

- (c) *Potential for Loss or Destruction.* Consideration of the potential loss or destruction of the historic structure(s) but for the financial assistance of the credit by evaluating the overall condition of the property including, but not limited to, an assessment of deferred maintenance, water penetration or structural failure.
- (d) *Statement of Need.* Assessment and demonstration of the impact and need for the financial assistance of the credit utilizing an evaluation of the extent of benefit from other funding sources.
- (e) *Geographic Diversity.* The project's potential for enhancing the geographic distribution of tax credit allocations throughout the Commonwealth.
- (f) *Administration and Feasibility of the Project.* The relative soundness and feasibility of the proposal as reflected in a budget that details eligible costs and a proposal consistent with the Secretary of Interior's Standards for the Rehabilitation of Historic Properties. Submission to the Commission of a conditions survey or work progress checklist. Compliance with relevant state laws or any pertinent Executive Orders such as Executive Orders regarding housing, affirmative action or sprawl and growth planning.
- (g) *Public Support.* The extent to which the taxpayer has sought public comments or received public support for the project from public organizations including, but not limited to, the Statewide Preservation Organization, the National Trust for Historic Preservation and any local historical commission.
- (h) *State of Utility.* The extent to which the project will transform a structure or site that currently lacks beneficial or practical use into one that reflects positively on the community and the Commonwealth.
- (i) *Economic Impact.* The project's economic impact on the surrounding community and the Commonwealth as a whole.

The Commission shall determine, utilizing the criteria set forth in 830 CMR 63.38R.1(5) and within the application schedule provided for in 830 CMR 63.38R.1(6), which projects, if any, are eligible to receive second certification under 830 CMR 63.38R.1(4)(b). The Commission's determination is not an adjudicatory proceeding under M.G.L. c. 30A, § 1 and therefore is not subject to review under M.G.L. c. 30A, § 14.

(6) *Application Process and Administrative Fees.*

- (a) *Application Deadlines.* Applications for initial, second and final certification are to be submitted to the Commission. Applications for initial and final certification are accepted and considered on a rolling basis. Applications for second certification are accepted and considered on a schedule as follows:
 - 1. applications received by the Commission by April 30 will be considered for approval within such time as prescribed by the Commission;

2. applications received by the Commission by August 31 will be considered for approval within such time as prescribed by the Commission; and
3. applications received by the Commission by January 15 will be considered for approval within such time as prescribed by the Commission.

The Commission is not required to issue second certifications in all application cycles.

(b) *Application Forms.* Application forms can be obtained from the Commission.

(c) *Initial Applications.* Applications for certification may be accepted under the application schedule on or after the effective date of this regulation, provided, however, that the Commission shall not issue final certifications before January 1, 2005.

(d) *Application Fees.* The Commission may impose a fee for any stage of the application and certification process.

(7) *Transferability of Credit.*

(a) *Transferors, Transferees.* Any taxpayer, allowed to take the historic rehabilitation credit may transfer the credit, in whole or in part, to any individual or entity, without the requirement of transferring any ownership interest in the project or any interest in the entity which owns the project. Transferees are entitled to apply the credits against the tax or excise with the same effect as if the transferee had incurred the qualified rehabilitation expenditures. For treatment of carryover credit, see 830 CMR 63.38R.1(10). The credit can be transferred only on or after the date a chosen project becomes a completed project. For recapture treatment, see 830 CMR 63.38R.1(12).

(b) *Notice and Transfer Statement.* The Commission, in consultation with the Department of Revenue, shall promulgate a form of transfer statement to be filed by the transferor of the rehabilitation credit. The transfer statement shall be required in addition to the transfer contract required in 830 CMR 63.38R.1(7)(c). Transfer Statement forms may be obtained from the Commission. The transferor shall file a transfer statement and a copy of the proposed transfer contract with the Department of Revenue prior to the transfer and shall further file with the Department of Revenue the executed transfer contract within 30 days after the completed transfer. The transfer statement shall provide the name and federal taxpayer identification number of each transferor and transferee. Further, such statement shall indicate the amount of historic rehabilitation credit transferred to each transferee. The statement shall also contain such other information as the Department of Revenue or the Commission may from time to time require.

(c) *Transfer Contract Requirements.* Any taxpayer transferring his or her credit must enter into a transfer contract with the transferee. The transfer contract must specify the following:

1. description and address for all structures in the project;

2. the date each structure in the project was placed in service;
3. the schedule of years during which the credit may be taken and the amount of credit previously taken for the project including all previous transferees; and
4. the amount of credit being transferred.

(d) *Transferred Eligibility to Claim Credit.* Any taxpayer who is a transferee of the historic rehabilitation credit may, provided all transfer and other requirements or limitations are met, apply such credit to either the tax imposed under M.G.L. c. 62 or the excise imposed under M.G.L. c. 63.

(8) *Allotment of Credit Among Partners, Members or Owners.*

Historic rehabilitation tax credits allowed to a partnership, a limited liability company taxed as a partnership or multiple owners of property shall be passed through to the persons designated as partners, members or owners, respectively, pro rata or, without regard to their sharing of other tax or economic attributes of such entity, pursuant to an executed agreement among such persons designated as partners, members or owners documenting an alternative distribution method.

(9) *First Tax Year for Claiming Credit.*

A taxpayer may apply the credit against the tax or excise imposed by M.G.L. c. 62 or M.G.L. c. 63, beginning with the tax year a chosen project becomes a completed project.

(10) *Carryforward of Credit.*

(a) *Carryforward Period.* Any taxpayer allowed a credit under M.G.L. c. 62, § 6J or M.G.L. c. 63, § 38R and this regulation for any taxable year may carry over and apply to the tax imposed by M.G.L. c. 62 or the excise imposed by M.G.L. c. 63, in any of the succeeding five taxable years, the portion, as reduced from year to year, of those credits which exceed such tax or excise for the taxable year. The carryover period, for any taxpayer, cannot exceed five taxable years after the close of the taxable year during which the chosen project becomes a completed project as provided for in 830 CMR 63.38R.1(9).

(b) *Carryforward of Transferred Credits.* A transferee shall use the credit in the year it is transferred. If the credit allowable for any tax year exceeds the transferee's tax liability for that tax year, the transferee may carry forward and apply in a subsequent taxable year, the portion, as reduced from year to year, of those credits which exceed such tax for the taxable year; provided, however, that the carryover period cannot exceed five taxable years after the close of the taxable year during which the chosen project becomes a completed project as provided for in 830 CMR 63.38R.1(9).

(11) *Ordering of Credit; Limitations on Credit.*

(a) *Ordering of Credit.* The credit may be applied in combination with other credits allowed under M.G.L. c. 62 in any order. Similarly, the credit may be applied in combination with other credits allowed under M.G.L. c. 63 in any order.

- (b) *Minimum Excise Limitation.* The credit may not be applied to reduce the minimum excise due under M.G.L. c. 63, §§ 32(b), 39(b).
- (c) *50% Limitation Inapplicable.* In determining the amount of the credit allowable for a taxable year, the 50% limitation imposed by M.G.L. c. 63, § 32C does not apply.
- (d) *Combined Group Members.* A taxpayer that participates in the filing a combined Massachusetts return of income may apply the credit against the portions of the combined group's excise liability attributable to the taxpayer, determined in accordance with the provisions of 830 CMR 63.32B.1(8), and not against the excise liability of other group members.
- (e) *Credit Nonrefundable.* The credit is nonrefundable.

(12) *Recapture.*

- (a) *Recapture.* If, before the end of the five year period beginning on the date on which the chosen project becomes a completed project, the taxpayer disposes of such taxpayer's interest in the project, the taxpayer's tax for the taxable year in which such disposition occurs shall be increased by the recapture amount. Any carryforward credit shall be adjusted by reason of such disposition.
- (b) *Transferees; Recapture.* Only taxpayers with an ownership interest on the date on which the chosen project becomes a completed project shall be subject to recapture. Transferees are not subject to recapture.
- (c) *Amount of Recapture.* The recapture amount shall equal the amount of the credit taken by the taxpayer, including any transferred credit, minus the credit allowed for ownership, but not less than zero. The credit allowed for ownership shall be the product of the amount of the credit allowed multiplied by a ratio, the numerator of which is the number of months the rehabilitated structure is owned by the taxpayer, and the denominator of which is 60. Credit taken includes any credit transferred. The month of disposition is considered a month owned by the taxpayer.
- (d) *Partial Disposition.* In the case of a partial disposition of the taxpayer's ownership interest in the project the recapture amount shall be pro rated.
- (e) *Examples.* The following examples illustrate the application of 830 CMR 63.38R.1(12).

Example 1. Calendar year taxpayer is allowed \$100,000 of credit for a completed project as of April 30, 2005. In tax year 2005, taxpayer takes \$40,000 of credit on his return, transfers \$10,000 of credit and carries forward \$50,000 of credit. On April 30, 2006 taxpayer disposes of 100% of his interest in the project. The taxpayer has owned the project for 20% of the required time (12 months divided by 60 months) and is therefore allowed 20% of the \$100,000 credit for ownership, or \$20,000. The taxpayer has taken \$50,000 of credit (\$40,000 on his return plus the \$10,000

transferred credit) and will have a \$30,000 recapture tax in his 2006 tax year. The \$50,000 carryforward is disallowed.

Example 2. Same facts as Example 1, except that in tax year 2005 taxpayer takes \$10,000 of credit on his return, transfers \$5,000 of credit and carries forward \$85,000 of credit. The taxpayer has taken \$15,000 of the credit but is allowed \$20,000 of the credit for ownership. There is no recapture tax but the carryforward is reduced to \$5,000.

Example 3. Same facts as Example 2, except the taxpayer disposes of 10% of his ownership interest on April 30, 2006. In this case, 10% of the taxpayer's \$100,000 allowed credit is subject to recapture. The taxpayer has owned this portion (\$10,000) of the project for 20% of the required time (12 months divided by 60 months) and is allowed 20% of the \$10,000 credit for ownership, or \$2,000. In addition, the taxpayer still is entitled to 90% of \$100,000 of the allowed credit. Therefore, the taxpayer is allowed \$92,000 of the credit. There is no recapture tax but the carryforward is reduced by \$8,000.

(13) Authorization to Take Further Actions.

Nothing in 830 CMR 63.38R.1 shall be deemed to limit the express or implied authority of the Commission or the Department of Revenue to take all actions deemed by the Commission or the Department of Revenue in their discretion to be consistent with the authority granted under M.G.L. c. 62, § 6J and M.G.L. c. 63, § 38R (St. 2003, c. 141, §§ 22, 24, 82 and St. 2004, c. 65, §§ 5-9, 13-18, 54).

REGULATORY AUTHORITY

830 CMR 63.38R.1: M.G.L. c. 62, §§ 6J and M.G.L. c. 63, § 38R (St. 2003, c. 141, §§ 22, 24, 82 and St. 2004, c. 65, §§ 5-9, 13-18, 54).

REGULATORY HISTORY

Emergency Regulation 4/13/04

Emergency Regulation 7/1/04

Emergency Regulation 9/29/04

Date of Promulgation: 12/17/04

Amend: 10/6/06 [sections (1)(a);(3)(b),(d),(e);(4)(b)2.:(6)(a)1,2,3]

Hydroelectric Energy

Hydroelectric System Project in United Kingdom

CSE – Community Supported Energy

Marine Renewable Energy Center – Umass Dartmouth

Massachusetts Technology Collaborative Renewable Energy Trust

Massachusetts Grant Programs for Renewable Energy & Financial Incentives for Green Building

(United Kingdom project)

HYDRO-ELECTRIC SYSTEM

ABOUT THE TOWN MILL SYSTEM



Making 'Green' Electricity



In 2007 the Town Mill completed a major project to install a micro hydro-electric system at the mill. The system generates 'green' electricity using the River Lim, our renewable resource. This enables us to make more efficient use of the water that already drives the waterwheel and millstones of this old flour mill that dates from 1340. Some of the electricity generated by the hydro system is used in the Town Mill, whilst the rest is sold into the National Grid.

Planning the Project

Making Better Use of Renewable

Resources. In 2004, in response to Government energy policies that encourage electricity generation from renewable resources as a means of reducing national CO₂ emissions, the Town Mill Trustees began to investigate using water from the River Lim to produce 'green' electricity, whilst still retaining the watermill's traditional flour-making capability.

Checking Feasibility. A Feasibility Study carried out in 2005 showed that a micro hydro-electric



system would be viable and would not affect the waterwheel and flour milling.



Developing the Project



Project Sponsorship. Towards the end of 2005 the Town Mill's Hydro Project Team obtained funding for the project from Clearskies Renewable Energy Grants (part of the DTI), the EDF Energy Green Fund and the Town Mill Trust.

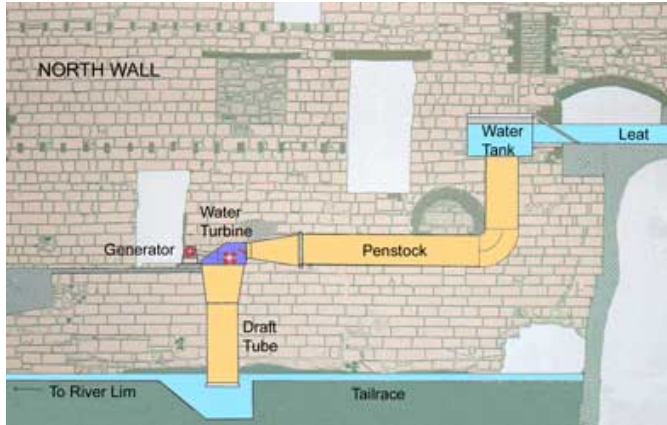


Selecting Engineers. The funding from the project sponsors enabled the Mill Trustees in 2006 to appoint HydroGeneration Ltd (now part of Segen.co.uk) as the Consultant Engineers to this turn-key project.

Designing for a Listed Building

The hydro-electric system was designed to fit into the disused wheel pit on the outside of the north wall of the mill building, which is a listed structure. This design solution avoided any structural alterations to the listed building. The location also provides easy access to the water supply from the leat (mill stream) and its discharge into the existing tailrace, already in use for the waterwheel.





How the System Works

Water from the leat is collected in a header tank and then fed through a penstock (feed pipe) to drive a water turbine. The water is returned to the river through the draft tube (exhaust). The rotating water turbine is then used to drive an induction generator through a pulley and belt system to generate our 'green' electricity. The system is fully automatic and operates around the clock.

Adding Value for Mill Visitors

Although the main aim of the project was to generate electricity with a micro hydro-electric system, another important aim was to ensure that the system could be used as an educational tool for mill visitors, to demonstrate the combination of modern technology and a renewable energy water source in the generation of electricity. The new digital technology of the hydro-electric system also provides a valuable and interesting comparison with the existing old technology of the working waterwheel, with its cogs and millstones.



Official Opening

The hydro-electric system was officially opened on 1 March 2007, when children from three local schools - Woodroffe School, St Michael's Primary School and Mrs Ethelston's Primary School - operated two sluices to direct river water into the hydro system before the water turbine was switched on to start producing our 'green' electricity.



Official
Opening
1 March
2007



History Almost Repeated



The mill had used its waterpower to produce DC electricity in the 1930s, but had to take out the waterwheel in order to find space for the hydro system. That DC system was removed in 1948 after the National Grid started operating with AC electricity. Sixty years later, the mill is back in the business of making electricity, whilst still being able to use its replacement Victorian waterwheel to make stone-ground flour. The 'green' electricity the Town Mill produces is estimated to save about 13 tons of CO₂ annually.



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March 12, 2007

Community Supported Energy Offers a Third Way

by Greg Pahl, Vermont Biofuels Association, Co-Founder

Although we have the necessary resources and technology to meet most of our energy needs in the future with renewable energy, until fairly recently one key strategy has, for the most part, been overlooked in North America. This strategy involves the cooperative or collaborative installation and ownership of renewable energy projects at the local, community level.

When applied to wind power for example, this strategy falls in between the large-scale commercial wind farm and the small-scale residential wind turbine, and has been described as "The Third Way." This middle strategy, also referred to as Community Supported Wind, relies on somewhat smaller scale projects that are developed, sited and owned by members of the local community rather than out-of-state corporate entities.

Community Supported Wind could fill a huge gap in the present wind power sector. And this approach is not limited to wind power, but can be applied to virtually any type of local renewable energy project such as solar thermal or photovoltaic panels, biogas digesters, a variety of biofuels production facilities, geothermal or geoelectric projects, and small-scale hydro.

When applied to a wide variety of renewable energy technologies, this strategy is sometimes known as Community Supported Energy (CSE). CSE projects are somewhat similar to Community Supported Agriculture (CSA). The main difference, however, is that instead of investing in potatoes, carrots, or cucumbers, with CSE, local residents invest in energy projects that provide greater energy security and a wide variety of other benefits.

Many Advantages

A cooperative or community owned energy project offers many advantages. It stimulates the local economy by creating new jobs and new business opportunities for the community while simultaneously expanding the tax base and generating new income for local residents. A locally owned energy project also generates support from the community by getting people directly involved.

Another advantage of community energy projects is that they can be owned cooperatively or collectively through a variety of legal mechanisms. Ownership strategies can include limited liability corporations (LLCs), cooperatives, school

CSE projects are somewhat similar to Community Supported Agriculture (CSA). The main difference, however, is that instead of investing in potatoes, carrots, or cucumbers, with CSE, local residents invest in energy projects that provide greater energy security and a wide variety of other benefits.

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districts, municipal utilities or other municipal entities, or combinations of these models. Sometimes a partnership with an existing utility can be mutually beneficial.

An excellent example of this approach is the prominent, commercial-scale wind turbine located on Toronto's (Ontario) harbor front that is 50 percent owned by WindShare, a 427-member cooperative of local residents, while the other half is owned by Toronto Hydro Energy Services. While the appropriate model will differ from project to project and from state to state (or province), depending on a wide range of variables, what these strategies all have in common is some form of community ownership and group benefit.

The main point is to identify the project as belonging to the community, which may avoid (or at least minimize) the usual conflicts between local residents and developers, whose large-scale, commercial proposals are often viewed as primarily benefiting absentee owners. Local ownership is the key ingredient that transforms what would otherwise be just another corporate energy project into an engine for greater energy security that directly benefits its owners -- the members of the community.

Community Supported Energy projects offer yet another advantage; they retain a greater amount of income in the local area and increase the economic benefits substantially over projects owned by out-of-area developers, according to a study conducted by the National Renewable Energy Laboratory (NREL) for the Government Accountability Office. NREL compared the effect of large corporate wind farms owned out of area with similar projects owned locally.

The study found local ownership yielded an average of \$4 million in local income annually, over three times more than the \$1.3 million produced with out-of-area control, while job creation was more than twice as large in the local model.*

A European Model

With benefits like these, why aren't there more CSE projects? For one thing it's a relatively new concept in North America, although it's a well-established strategy in many European nations. In Denmark and Germany -- world leaders in wind energy development -- many commercial-scale wind turbines are installed as single units or in small clusters distributed across the countryside, or sometimes in or near urban areas. And many of these turbines are either owned by the farmers on whose land the turbine stands, or by groups of local residents.

This idea has spread to many other EU nations as well and is beginning to catch on in Canada and the United States, especially in states like Minnesota and Iowa, where dozens of community owned wind farms are sprouting up.

One of the best examples is MinWind, located near Luverne, Minnesota. The original project, which began in 2000, consisted of four 950-kilowatt turbines owned by 66 local farmers. The project was so successful that seven additional turbines were added in 2004. The second group of turbines is owned by approximately 200 local investors.

One of the main reasons for this success has been Minnesota's progressive promotion and support of locally owned wind projects and other renewable energy initiatives.

The main barrier to wide-scale implementation of Community Supported Energy in most other states, however, is a regulatory environment and process that does virtually nothing to encourage these types of projects. For the most part, CSE isn't even on the radar screen of most regulators, and the typical high cost of the approval process (often \$100,000 to \$500,000 or more) halts most community based initiatives before they even get started.

What's more, federal energy production tax credits (PTC) for wind farms, for example, favor large-scale corporate projects that are well beyond the means of local communities. This situation needs to change, and it needs to change soon, because all viable forms of renewable energy, regardless of their size, need to be supported and encouraged if we are going to meet the substantial energy challenges of the next few decades.

One of the best regulatory models in North America at the present time is the new Standard Offer Contracts in Ontario. Announced early in 2006, the new Standard

Maryland

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Brookfield Renewable Power -
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Senior Project Engineer

Kyocera Solar, Inc. -
Scottsdale, Arizona

Inside Sales Representative

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Graphic Design- Unpaid Internship

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Site Superintendent -

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Engineer - Professional PE

Borrego Solar - Lowell,
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Offer Contracts (Advanced Renewable Tariffs) are an historic step towards a sustainable energy future. Standard Offer Contracts allow homeowners, landowners, farmers, co-operatives, schools, municipalities and others to install renewable energy projects up to 10 megawatts in size and to sell the power to the grid for a fixed price for 20 years.

The Ontario Standard Offer Contracts provide a powerful model that other provinces and states should consider when developing their own renewable energy laws and regulations.

Security and Opportunity

Community-based energy strategies generally place the renewable energy facility as close as possible to where it is needed. In the case of electricity generation, this reduces the need for additional, ugly and expensive high-tension power lines, while simultaneously improving the stability of the electricity network. One or two good sized wind turbines, for example, could provide much of the power needed for a school, business or manufacturing facility.

A cluster of medium-to-large-sized turbines could power a whole neighborhood or small community. Add a significant number of rooftop solar panels, small-scale hydroelectric or geoelectric plants, ground-source heat pumps, and a local cooperative bio-fuels facility or two for biodiesel, ethanol, wood chips or pellets, and you begin to assemble a picture of greater energy security that provides for a significant proportion of your community's energy needs while generating income, all from local resources.

The people employed to operate and maintain these facilities keeps them working (and spending) in their local communities, and eliminates the need for them to commute somewhere else to get to their jobs. The result is energy creation and conservation at the same time. And if the renewable energy facilities power other job-creating activities, such as local manufacture of essential products, you end up boosting the local economy while creating even more jobs. It's a win-win-win proposition.

The energy challenges we face are enormous, consequently the response needs to be sized to match. Community Supported Energy offers the potential of making substantial progress on a large scale while directly engaging (and benefiting) a major segment of the population. CSE is an idea whose time has definitely arrived, and I am convinced that if this strategy were to be adopted across the nation that it could provide a huge boost to local economies everywhere while offering greater energy security and price stability.

The opportunities for locally based renewables are enormous. Almost every city and town in the country has the potential for one or more CSE project. Perhaps you can get one started in your community.

**Renewable Energy; Wind Power's Contribution to Electric Power Generation and Impact on Farms and Rural Communities, General Accounting Office, September, 2004, 82, 83, www.gao.gov/new.items/d04756.pdf*

Greg Pahl is a Weybridge, Vermont writer and co-founder of the Vermont Biofuels Association as well as the Addison County Relocalization Network. This article contains excerpts from his new book: The Citizen-Powered Energy Handbook: Community Solutions to a Global Crisis. The book's primary focus is on Community Supported Energy.

Image Gallery (1)





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Upcoming Event:
Annual Technical Conference
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New England Marine Renewable Energy Consortium

The New England Marine Renewable Energy Consortium (MREC) is an organization comprised of industry, academia, government agencies, municipalities, public interest groups, and concerned individuals. Its focus is to foster the development of ocean based renewable energy (wave, tidal, current and ocean wind). The consortium seeks to develop a network of technology developers and energy users who will collectively define the needs of this nascent industry and work to bring together the required technology, capital, infrastructure, and human resources to implement ocean based renewable energy in the most sustainable manner for the region.

Vision

The vision of MREC is a marine renewable energy system that will provide economically priced electricity while supporting the manufacturing and service industry such a system requires.

Mission

The mission of MREC is to monitor and characterize the industry's changing needs, to carry out activities to achieve the funding that is required to enable the industry's growth and to support the implementation of projects. It is anticipated that this would include establishment of a National Marine Renewable Energy Research, Development and Demonstration Center that would incorporate a research infrastructure, development labs and demonstration sites in the region. Such a center would support both research and development, as well as provide access to testing and demonstration infrastructure that would include one or more ocean test sites. Such sites would be pre-approved for pilot generation and carefully monitored to minimize environmental impacts.

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Hydropower in Massachusetts

Numerous hydropower installations already supply electricity to Massachusetts. These units range from large dams and pumped-storage facilities with capacities in the hundreds of megawatts down to small-scale facilities throughout the state with capacities in the tens to hundreds of kilowatts. Here you can learn about these installations as well as several rehabilitation projects serving individual buildings in Massachusetts.

Visit our Project Search Database, and select "hydropower" as the technology to see information on installations across the state, or narrow your search by town or other criteria.

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Massachusetts Grant Programs for Renewable Energy

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Commercial Grant Programs (1)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants

Grant Programs for Government Agencies (3)

1. MTC - Clean Energy Pre-Development Financing Initiative
2. MTC - Large Onsite Renewables Initiative (LORI) Grants
3. MTC - Matching Grants for Communities

Institutional Grant Programs (1)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants

Industrial Grant Programs (1)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants

Residential Rebate Programs (2)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants
2. MTC - Massachusetts Green Communities™ Grant

Grant Programs for Schools (1)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants

Grant Programs For Builders (1)

1. MTC - Large Onsite Renewables Initiative (LORI) Grants

Massachusetts - MTC - Clean Energy Pre-Development Financing Initiative

Applicable Sectors: Local Government, State Government and Federal Government

Summary:

The Clean Energy Pre-Development Financing Initiative offers grants and loans to support the development of grid-connected renewable energy systems in New England. Eligible technologies or resources include photovoltaics (PV); solar thermal electric energy; wind energy; naturally flowing water and hydroelectric power; landfill gas; anaerobic digestion; and low-emission, advanced power-conversion technologies using "eligible biomass fuel," as provided for in 225 CMR 14.05(1)(a)6. This solicitation is not intended to support projects using waste-to-energy or ocean thermal, wave or tidal energy technologies. [Learn More...](#)

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Massachusetts - MTC - Large Onsite Renewables Initiative (LORI) Grants

Applicable Sectors: Commercial, Industrial, Schools, Local Government, State Government, Fed. Government, Multi-Family Residential and Institutional

Summary:

The Massachusetts Technology Collaborative's (MTC) Large Onsite Renewables Initiative (LORI) provides two kinds of grants – Feasibility Study Grants and Design & Construction Grants – on a competitive basis to expand the production and use of distributed renewable-energy technologies in the state. MTC is the administrator of the Renewable Energy Trust Fund, the state's public benefits fund for renewable energy. [Learn More...](#)

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Massachusetts - MTC - Massachusetts Green Communities™ Grant

Applicable Sectors: Low-Income Residential and Builders/Developers

Summary:

In a cooperative effort with Enterprise Community Partners, Inc., MassHousing and The Massachusetts Technology Collaborative (MTC) have established the Massachusetts Green Communities™ partnership. Within this cooperative effort, MassHousing's Green Affordable Housing Development Program seeks to promote the construction of renewable energy generation systems in affordable housing developments financed by MassHousing or the Affordable Housing Trust Fund. [Learn More...](#)

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Massachusetts - MTC - Matching Grants for Communities

Applicable Sectors: Local Government

Summary:

The Clean Energy Choice program, launched in October 2004, allows Massachusetts electric customers to pay an additional premium each month to support green power. When consumers choose to support clean energy projects that qualify under the state's renewable portfolio standard (RPS), the Massachusetts Technology Collaborative (MTC) will match those premiums with up to \$2.5 million annually in grants. Through matching grants for communities, towns and cities can receive up to one dollar in funding for each dollar residents spend on clean energy. Towns and cities can use this money to fund clean energy projects within their communities. [Learn More...](#)

Grant Funding Resources

Massachusetts Preservation Projects Fund
National Trust for Historic Preservation
Federal Historic Preservation Grants
Massachusetts Department of Energy and Environmental Affairs
A.D. Makepeace Neighborhood Fund
Cape Cod Cranberry Growers Association

Massachusetts Historical Commission

William Francis Galvin, Secretary of the Commonwealth

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Massachusetts Preservation Projects Fund

The MHC is accepting applications for Round 15 grants.

Application deadline is February 20, 2009.

Downloadable application, instructions, and workshop information.

Secretary of the Commonwealth William Francis Galvin and the Massachusetts Historical Commission (MHC) are pleased to announce Round 15 of the Massachusetts Preservation Projects Fund grant program. The MHC is now accepting applications for Round 15 grants. It is anticipated that funding for Round 15 will be in the range of the previous two grant rounds, Rounds 13 and 14, which were funded at \$750,000 and \$800,000, respectively.

The Massachusetts Preservation Projects Fund (MPPF) is a state-funded 50% reimbursable matching grant program established in 1984 to support the preservation of properties, landscapes, and sites (cultural resources) listed in the State Register of Historic Places. Applicants must be a municipality or nonprofit organization. Historic cultural resources in public and nonprofit ownership and use frequently suffer from deferred maintenance, incompatible use, or are threatened by demolition. These important resources represent a significant portion of the Commonwealth's heritage. By providing assistance to historic cultural resources owned by nonprofit or municipal entities, the Massachusetts Historical Commission hopes to ensure their continued use and integrity. The program is administered in accordance with 950 CMR 73.00.

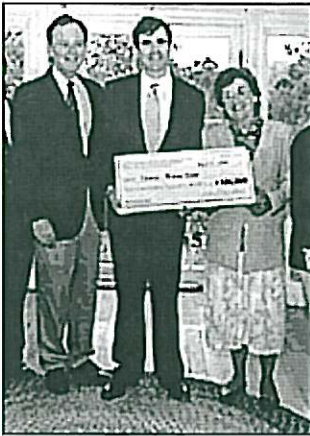
Please note that grant disbursement is subject to reauthorization of the capital accounts and the availability of sufficient allocated funds.

Eligible Activities

Pre-development Projects: Requests may be submitted to conduct studies necessary to enable future development or protection of a State Register-listed property, such as feasibility studies involving the preparation of plans and specifications, historic structures reports, and certain archaeological investigations.

Development Projects: Requests may be submitted for construction activities including stabilization, protection, rehabilitation, and restoration. Grant funding can be used to cover costs of material and labor necessary to ensure the preservation, safety, and accessibility of historic cultural resources. Development of universal access is allowable as part of a larger project.

Allowable costs: Overall building preservation, building code compliance, and barrier-free access where historic fabric is directly



Secretary Galvin presents an MPPF check for \$100,000 to the Thomas-Webster Estate in Marshfield.

involved.

Non-allowable costs: Projects consisting of routine maintenance, upgrading of mechanical systems (i.e., heating, ventilation, air conditioning, electrical, plumbing), renovation of non-historic spaces, moving of historic buildings, or construction of additions will not be considered. Architectural/engineering fees for any project work are not eligible for funding or use as matching share.

Acquisition Projects: Requests may be submitted to acquire State Register-listed properties that are imminently threatened with inappropriate alteration or destruction.

Amount of Request

The Massachusetts Preservation Projects Fund is currently funded for one grant round through fiscal year 2010. Requests for pre-development projects can range from \$5,000 to \$30,000; requests for development or acquisition projects may range from \$7,500 to \$100,000. Work completed prior to grant award is ineligible for funding consideration.

A unique feature of the program allows applicants to request up to 75% of total construction costs if there is a commitment to establish a historic property maintenance fund by setting aside an additional 25% over their matching share in a restricted endowment fund.

Emergency funds are available at the Secretary's discretion for stabilization of resources considered in imminent danger. There are no deadlines for the submission of emergency fund requests.

State Register Listing

The State Register of Historic Places is the official list of the state's cultural resources deserving preservation consideration. The State Register is a compilation of eight different types of local, state, and federal designations. The most common designations on the State Register are National Historic Landmarks, National Register properties, and local historic districts.

The largest single category on the State Register is from National Register nominations. The MHC can only accept National Register nominations from communities that have completed a comprehensive survey of their historic properties. National Register listing involves substantial lead-time and therefore procedures for nominating eligible unlisted properties should be implemented well ahead of the next grants cycle. Properties can be listed individually or as contributing elements of a National Register District. To find out if your community has a comprehensive survey or to initiate the process of evaluating a property for listing on the National Register, contact the Preservation Planning Division of the MHC.

Applicants should contact the Massachusetts Historical Commission or their local historical commission to ascertain State Register status of the property before applying for grant funds.

Selection Criteria

- Level of historical significance of the property
- Potential for loss or destruction of the property
- Administrative and financial management capabilities of the applicant
- Appropriateness of proposed work for the property
- Demonstrated financial need

- Extent of public support and benefit from users, professionals, and community leaders
- Consistency with state and local preservation and community revitalization plans
- Use of traditional materials and building techniques
- Geographic distribution and first-time grant for community/project

Preservation Restriction (M.G.L. Ch. 184, ss.31-33)

The owner of a property funded for a development or acquisition project must enter into and record a preservation restriction and maintenance agreement in perpetuity. Owners of properties funded for pre-development projects shall enter into a preservation restriction for a term of years, depending on the grant amount awarded.

MPPF Application Process

It is anticipated that funding for Round 15 will be in the range of the previous two grant rounds, Rounds 13 and 14, which were funded at \$750,000 and \$800,000, respectively. To apply, download the instructions and application below. Forms and instructions will also be available shortly and may be requested by contacting the MHC. If you have any questions or need further information, please call MHC's Grants Division at 617-727-8470 or e-mail Paul Holtz.

Prospective applicants are encouraged to attend a workshop to learn more about the program.

Important Dates — Round 15:

Application deadline: February 20, 2009

Award selection: June 10, 2009

Project end date: June 30, 2010

Decisions are made by the Massachusetts Historical Commission. All Commission meetings are open to the public.

Please note that grant disbursement is subject to reauthorization of the capital accounts and the availability of sufficient allocated funds.

The quickest way to apply is to download the applications and instructions. To receive one by mail please contact the MHC.

MPPF Round 15 Application (pdf format 245kb)

MPPF Round 15 Instructions (pdf format 408kb)



MPPF Workshops

MPPF grant workshops provide an opportunity to learn about the MPPF program,

NATIONAL TRUST FOR HISTORIC PRESERVATION

Nonprofit Organization and Public Agency Funding

For nonprofit organizations and federal, state, or local government agencies

There are several publications available to help with your preservation project. The National Trust's [Historic Building Information Sheet](#) can help you get started, along with publications from [Preservation Books](#), including [Quest for Funds Revisited: A Fundraising Starter Kit](#) and [Successful Fundraising Activities for Preservation Organizations](#).

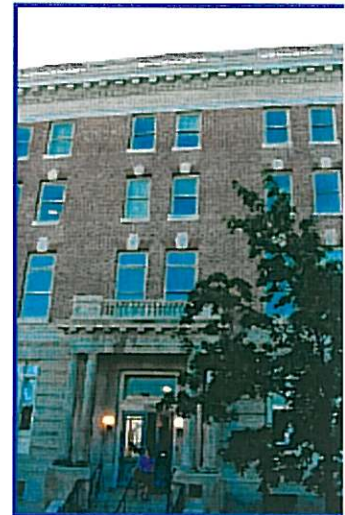
Funding and tax incentives may be available for your restoration project at the federal, state and local level. To begin your search, contact your [state historic preservation office and your statewide preservation organization \(SHPO\)](#). The National Trust has prepared a [state-by-state list of tax incentives](#), detailing state tax incentive programs for historic preservation; however, the most up to date information will be available from your SHPO. You may also be able to find assistance at the local level by contacting your local preservation commission and your local planning, community development, or housing offices. In addition, please review the following programs.

Funding Available through the National Trust Preservation Fund

The [National Trust Preservation Fund](#) includes funds that provide two types of assistance to nonprofit organizations and public agencies: 1) matching grants from \$500 to \$5,000 for preservation planning and educational efforts, and 2) intervention funds for preservation emergencies. Matching grant funds may be used to obtain professional expertise in areas such as architecture, archeology, engineering, preservation planning, land-use planning, fund raising, organizational development and law as well as to provide preservation education activities to educate the public.

The [Johanna Favrot Fund for Historic Preservation](#) provides nonprofit organizations and public agencies grants ranging from \$2,500 to \$10,000 for projects that contribute to the preservation or the recapture of an authentic sense of place. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark. Funds may be used for professional advice, conferences, workshops and education programs.

The [Cynthia Woods Mitchell Fund for Historic Interiors](#) provides nonprofit organizations and public agencies



The Thurgood Marshall Center
Built in 1912 as the first full-service YMCA for African-Americans, the Thurgood Marshall Center for Service and Heritage now houses a Shaw Heritage Museum.

grants ranging from \$2,500 to \$10,000 to assist in the preservation, restoration, and interpretation of historic interiors. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark. Funds may be used for professional expertise, print and video communications materials, and education programs.

If you would like more information on any of these grant programs, please contact the [National Trust Regional Office](#) nearest you.

[National Trust Preservation Fund grant application](#)

[Examples of previously funded Mitchell Fund projects](#)

National Trust Loan Fund

The [National Trust Loan Fund \(NTLF\)](#) has more than 35 years of experience in supporting preservation-based community development projects across the country. As a certified Community Development Financial Institution, it has a mission of providing financial and technical resources to organizations that use historic preservation to support the revitalization of underserved and distressed communities.

NTLF specializes in predevelopment, acquisition, mini-permanent, bridge and rehabilitation loans for residential, commercial and public use projects. Eligible borrowers include not-for-profit organizations, revitalization organizations or real estate developers working in certified Main Street communities, local, state or regional governments, and for profit developers of older and/or historic buildings.

National Trust Community Investment Corporation

The [National Trust Community Investment Corporation \(NTCIC\)](#), makes equity investments in the rehabilitation of historic properties eligible for the 20 percent federal historic rehabilitation tax credit, and where available, state historic tax credits and the New Markets Tax Credit (NMTC). NTCIC invests in projects that have at least \$6.0 million in total development costs and that generate at least \$1.5 million in historic tax credit equity. Smaller deals will be referred to the Small Deal Fund for equity investment consideration. Tax-exempt nonprofit organizations and public-sector developers may be eligible for an NTCIC equity investment by creating a limited liability partnership. NTCIC has a special interest in those projects with a high community benefit.

NTCIC pays a [referral fee](#) to National Trust Advisors, Regional Offices, Statewide and Local Partners and Main Street programs who refer deals that ultimately result in an equity investment by NTCIC.

Save America's Treasures

Established by Executive Order in 1998, [Save America's Treasures \(SAT\)](#) is a public-private partnership that includes the National Trust for Historic Preservation, the National Park Service, the President's Committee on the Arts and Humanities and the federal cultural agencies. The program celebrates America's great historic and cultural legacy by identifying and raising resources to preserve historically significant sites and collections. Each year, Save America's Treasures federal challenge grants are awarded to eligible historic resources for approved preservation activities.

The public partners of Save America's Treasures recently announced that applications are now available for the fiscal year 2007 federal SAT grant round. These grants help fund preservation and/or conservation work on nationally significant intellectual and cultural artifacts and nationally significant historic structures and sites. Eligible applicants include nonprofit, tax-exempt 501(c), U.S. organizations, units of state or local government, and federally recognized Indian tribes. Grants are awarded through a competitive process and require a dollar-for-dollar, non-federal match. The minimum grant request for collections projects is \$25,000 federal share; the minimum grant request for historic property projects is \$125,000 federal share. The maximum grant request for all projects is \$700,000 federal share.

In 2006, SAT awarded \$7.6 million to 42 projects, including Birmingham's Civil Rights Landmark the Sixteenth Street Baptist Church and the Nebraska State Historical Society's Native American Collection. The average grant size for collections was \$132,000 and \$223,000 for historic properties.

The 2008 federal Save America's Treasures guidelines and application can be accessed at <http://www.cr.nps.gov/hps/treasures/index.htm> when they are available.

Save America's Treasures at the National Trust for Historic Preservation, as the partnership's principal private partner, plays an important role as an on-the-ground 'eyes and ears' for the federal program. We work closely with a variety of projects across the country, meeting with project representatives, providing advice and guidance on the federal grant process, often reviewing draft applications as appropriate, and providing assistance in meeting the required match when possible. We are dedicated to reaching out and identifying strong candidates and encourage you to keep us informed of any projects you think worthy. The offices of Save America's Treasures at the National Trust are staffed by Director Bobbie Greene McCarthy, and Program Manager Fiona Lawless. Please call us at (202) 588-6012 if you have questions or would like further information.

Federal Rehabilitation Tax Credit

Federal law provides a federal income tax credit equal to 20% of the cost of rehabilitating a historic building for commercial use. To qualify for the credit, the property must be a certified historic structure—that is, on the National Register of Historic Places or contributing to a registered historic district. (Non-historic buildings built before 1936 qualify for a 10% tax credit.) A substantial rehabilitation is necessary, and the work must meet the [Secretary of the Interior's Standards for Rehabilitation](#). Applications for the credit are available through your [state historic preservation office](#), and the final decisions are made by the National Park Service. For more information, take a look at our [Rehabilitation Tax Credit Guide](#), prepared by our for-profit subsidiary, NTCIC. In addition, the [National Park Service's website](#) offers helpful information on this tax credit. (At present, individuals rehabilitating a historic property for their primary residence do not qualify for this tax credit.)

Transportation Enhancements Funding

Since 1991, states have dedicated over \$2 billion in Federal-aid highway funds to thousands of transportation-related historic preservation projects; historic resources have also benefited from transportation enhancement money for landscaping, land acquisition, historic bridge and road activities, and streetscapes in historic

commercial districts. For more information on transportation enhancements funding, download [Building on the Past, Traveling to the Future](#), a free guide prepared by the National Trust and the Federal Highway Administration, or visit the [Transportation section of this website](#).

Historic Preservation Fund

[The Historic Preservation Fund \(HPF\)](#) provides grants to states, tribes, and local governments to use for activities like education, preparation of National Register nominations and development of comprehensive preservation plans. The HPF receives annual appropriations from Congress, and this federal money is matched by state dollars. The fund is administered in a partnership between the National Park Service and the states through [state historic preservation offices](#), tribes and local governments.

National Park Service

Since 1968, the National Park Service has provided funding for a variety of grant programs aimed at protecting our most significant historic and cultural sites and our diverse cultural heritage. More than one billion dollars has been awarded to federal, state and local governments, tribes, nonprofit organizations and educational institutions for preservation projects in all 50 states and the U.S. Territories. [The Historic Preservation Grants Division](#) is responsible for the administration of the National Park Service's preservation grant programs.

A quick search of the Internet using "historic preservation" and "funding" will bring up a number of other websites that will be useful, including those of the [Advisory Council on Historic Preservation](#), the [Foundation Center](#), and [Cornell University](#). These sites include listings of private foundations and other groups that offer grants for historic preservation.

For more information on funding for nonprofit organizations and government agencies, please [contact the National Trust's Resource Center](#).

1785 Massachusetts Ave. NW, Washington, DC 20036-2117 tel: 202.588.6000 800.944.6847 fax: 202.588.6038
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- » Federal Grants Wire Home
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- » What are Federal Grants?
- » How to write a Federal Grant Proposal
- » National Grants Conferences
- » How to apply for Federal Grants
- » Tips on applying for Federal Grants
- » Who is eligible to apply for Federal Grants?
- » Careers for Women

Historic Preservation Fund Grants-In-Aid (15.904)

Get A Grant In 2 Weeks

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Never Have To Pay Back!
www.GovGrantSource.org

Apply For College Grants

Find Hundreds of Online Colleges! AA, BA & Graduate
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WashingtonPost.com

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Your free money search stops here. Apply now using
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V V

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Program

15.904 Historic Preservation Fund Grants-In-Aid

Federal Agency

NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR

Authorization

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Program Number

15.904

Last Known Status

Active

Objectives

To provide matching grants to States for the identification, evaluation, and protection of historic properties by such means as survey, planning technical assistance, acquisition, development, and certain Federal tax incentives available for historic properties; to provide matching grants to States to expand the National Register of Historic Places, (the Nation's listing of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering and culture at the National, State and local levels) to assist Federal, State, and Local Government agencies, nonprofit organizations and private individuals in carrying out historic preservation activities; and to provide grants to Indian Tribes and Alaskan Native Corporations to preserve their culture.

Types of Assistance

Formula Grants; Project Grants.

Uses and Use Restrictions

Matching grants can directly finance State staff salaries, equipment, and materials, and travel necessary to accomplish program purposes. States may transfer funds to third parties to carry out historic preservation activities such as surveys, preservation plans, National Register nominations, architectural plans and specifications, historic structures reports, and engineering studies necessary to restore properties listed on the National Register of Historic Places, and for acquisition or repair of these properties. Development projects must comprise one or more of the 4 allowable treatments defined in the "Secretary of the Interior's Standards for the Treatment of Historic Properties" (36 CFR 78). These treatments are preservation, restoration, rehabilitation, and reconstruction. Major reconstruction is not eligible. Other activities must meet the applicable Secretary of the Interior's Standards for Archeology and Historic Preservation. In 2002, the amount appropriated from the Historic Preservation Fund for financial assistance to the States, Territories, and the Freely Associated States of Micronesia, was \$39 million, with an additional \$3 million for grants to Indian tribes. In accordance with Section 102(a)(5) of the National Historic Preservation Act,

**Related National Park Service
Federal Grants**

- » Civil War Battlefield Land Acquisition Grants
- » Historic Preservation Fund Grants-in-aid
- » Rivers, Trails and Conservation Assistance
- » Chesapeake Bay Gateways Network
- » Conservation Activities by Youth Service Organizations

**Other Department of the
Interior Agencies**

- » Bureau of Indian Affairs
- » Bureau of Land Management
- » Bureau of Reclamation
- » Geological Survey
- » Indian Arts and Crafts Board
- » Minerals Management Service
- » National Park Service
- » Office of Surface Mining Reclamation and Enforcement
- » Office of Territorial and International Affairs
- » U.S. Fish and Wildlife Service

as amended, grantees must agree to assume, after completion of the restoration project, the total cost of the continued maintenance, repair, and administration of the property in a manner satisfactory to the Secretary.

Eligibility Requirements

Applicant Eligibility

Eligible applicants are States and Territories as defined in the National Historic Preservation Act, as amended, operating programs administered by a State Historic Preservation Officer appointed by the Governor or according to State law, and which are otherwise in compliance with the requirements of the Act. Eligible applicants for the Tribal Grant Program are Federally recognized Indian Tribes, Alaska Native Corporations, and Native Hawaiian organizations.

Beneficiary Eligibility

Subrecipients eligible are State and local governments, public and private nonprofit organizations, and individuals. According to their own priorities and plans, States select their own projects and may subgrant to public and private parties, including local governments, federally recognized Indian tribal governments, nonprofit and for-profit organizations, and/or individuals to accomplish program objectives. At least ten percent of each year's appropriation must be subgranted to local governments certified as eligible to carry out preservation functions according to 36 CFR 61. Sixty percent Federal; 40 percent State (public and/or private funds and/or allowable in-kind donations). American Samoa, Guam, Commonwealth of Northern Mariana Islands, Federated States of Micronesia, Republic of Palau, Republic of Marshall Islands and Virgin Islands are exempt from matching share per Public Law 96-205.

Credentials/Documentation

Each State must have a qualified Review Board, employ professionally qualified staff, and maintain an approved statewide historic preservation plan in accordance with 36 CFR 61.

Application and Award Process

Preapplication Coordination

The Annual Application from the State uses the standard application forms furnished by 43 CFR Part 12, Subpart C, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments." Environmental impact assessment is required. E.O. 12372, "Intergovernmental Review of Federal Programs," applies. An applicant should consult the office or official designated as the Single Point of Contact in the State for information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.

Application Procedure

Application is made by the States for an annual grant in the form of planned activities and projects. 43 CFR Part 12, Subpart C, "Uniform Administrative Requirements For Grants and Cooperative Agreements to State and Local Governments," applies to awards to States. Applicants for financial aid for subgrants and contracts must contact the State Historic Preservation Office for application information. Applicants for HPF Tribal Grant projects may contact the National Park Service at (202) 343-9572.

Award Procedure

The Annual appropriation is allocated by the Secretary of the Interior among States and Territories.

Deadlines

Set dependent upon the date of enactment of appropriations for the fiscal year for which assistance is requested. States set subgrant deadlines.

Range of Approval/Disapproval Time

Appeals

Not applicable.

Renewals

Not applicable. Grants to States are for 2 years, subject to "Use or Lose" procedures established by the Federal agency.

Assistance Considerations

Formula and Matching Requirements

Funds are allocated to States based upon population, land area, and previous funding levels. Award amounts are subject to the availability of funds.

Length and Time Phasing of Assistance

Fiscal year in which funds are appropriated and one succeeding fiscal year.

Post Assistance Requirements

Reports

An annual performance report is required comparing planned accomplishments with actual results.

Summary completion reports must be maintained for subgrant expenditures. Expenditure reports as specified in 43 CFR Part 12, Subpart C, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments" or in OMB Circular No. A-110 are required.

Audits

In accordance with the provisions of OMB Circular No. A-133 (Revised, June 24, 1997), "Audits of States, Local Governments, and Non-Profit Organizations," nonfederal entities that expend financial assistance of \$300,000 or more in Federal awards will have a single or a program-specific audit conducted for that year. Nonfederal entities that expend less than \$300,000 a year in Federal awards are exempt from Federal audit requirements for that year, except as noted in Circular No. A-133.

Records

Full fiscal and project records to be maintained by grantees in accordance with OMB Circular Nos. A-87, and 43 CFR Part 12 for States and Tribes; OMB Circular Nos. A-122 and A-110 as required.

Program Accomplishments

See 15.914, National Register of Historic Places for the number of historic districts, individual properties, and National Historic Landmarks nominated because of the Historic Preservation Fund Grants-in-Aid Program. Since 1968, over \$1.094 billion has been awarded to 59 States and Territories, the National Trust, and Tribes. Over 850 subgrants were awarded by 59 State and Territorial grantees in Fiscal Year 2000. These categorical matching grants administered by the National Park Service provide partial funding support to State Historic Preservation Offices (SHPOs) in carrying out statutory responsibilities under the National Historic Preservation Act, as amended, for the following types of activities: (1) conducting a comprehensive survey of historic properties (12.4 million acres and 123,000 properties assessed) and maintaining inventories of information gained from such survey; (2) nominating properties to the National Register of Historic Places (1,450 nominations); (3) assisting and advising Federal and State agencies and local governments in carrying out their historic preservation responsibilities (e.g., 105,000 Federal projects reviewed); (5) cooperating with local governments in developing local historic preservation programs (total of 1,300 Certified Local Governments (CLGs); and (6) advising and assisting in the evaluation of proposals for rehabilitation projects that may qualify for Federal tax incentives (e.g., 3,400 Federal Tax Credit applications reviewed). Some of the indicators of program success or outcome include: historic resources saved, customers satisfied, timely responses to requests, and increases in grant products such as those noted above.

Financial Information

Account Identification

14-5140-0-2-303.

Obligations

(Grants) FY 02 \$69,000,000; FY 03 est \$61,597,000; and FY 04 est \$69,000,000.

Range and Average of Financial Assistance

\$197,073 to \$1,194,000; \$661,017.

Regulations, Guidelines and Literature

A brochure describing the grant and related programs are available upon request from the Department of the Interior, National Park Service, 1849 C Street, NW., NC 350 Washington, DC 20240. See the "Catalog of Historic Preservation Publications." Important examples include: "The National Register of Historic Places," 1966-1994 issue, a softbound volume describing National Register properties published in conjunction with the National Trust for Historic Preservation Press and the National Conference for State Historic Preservation Officers, (John Wiley and Sons, Preservation Press, 1 Wiley Drive, Somerset, New Jersey 08875, \$98.00), the Historic Buildings Preservation Briefs series; the Preservation Planning series; the Preservation Tech Note Series; and, the National Register Bulletin series. Program regulations are specified in Volume 36 of the Code of Federal Regulations. Program standards are found in "The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation."

Related Programs

15.910, National Natural Landmarks Program; 15.912, National Historic Landmark; 15.914, National Register of Historic Places; 15.915, Technical Preservation Services.

Information Contacts

Regional or Local Office

State programs applicants should refer to Catalog Appendix IV for list of State Historic Preservation Offices. Contact the appropriate State agency for subgrant eligibility information. This list is also available on the National Park Services ParkNet, Links to the Past, World Wide Web site (<http://www.cr.nps.gov>). Corrections and additions should be directed to Tawana Jackson, Heritage Preservation Services Division, National Park Service, 1849 C Street, NW., NC 200, Washington, DC 20240 or E-mail

Tawana_Jackson@nps.gov.

Headquarters Office

Associate Director, Cultural Resource Stewardship and Partnerships, National Park Service, Department of the Interior, Washington, DC 20240. Telephone: (202) 343-9564.

Web Site Address

<http://www.family.info.gov.cfda.index.htm>

Examples of Funded Projects

The listing of the first post-World War II development in the National Register of Historic Places. Designed by developer Edward Hawkins, Colorado's Arapaho Acres residential district, contains houses reflecting the International Style of architecture influenced by architect Frank Lloyd Wright; documentation of Blackbeard's flagship Queen Anne's Revenge, lost at Beaufort Inlet in 1718, by researchers with the North Carolina Department of Cultural Resource's Underwater Archeology Unit; restoration of the Chicago's Reliance Building, a National Historic Landmark, using the combined resources of the Federal Historic Preservation Tax Incentives Program, city, and private funding; and restoration of the Chickasaw White House by the Chickasaw Nation of Oklahoma. The Chickasaw White House, designed by former Chickasaw Governor Douglas Johnston and built in 1895, is listed in the National Register of Historic Places.

Criteria for Selecting Proposals

Each State selects subgrant proposals for funding in accordance with its own priorities.

**State of Massachusetts Office of Energy and Environmental Affairs
Office of Grants and Technical Assistance**

Green Communities Program

Agency: Department of Energy Resources (DOER)

Description: Provides funding in the form of grants and loans for communities that qualify as Green Communities per the Green Communities Act for all or a portion of costs of studying, designing, constructing and implementing energy efficiency activities, including, but not limited to energy conservation measures and projects; procurement of energy management services; installation of energy management systems, adoption of demand side management services; and the adoption of energy efficiency policies. Funds shall also be used to finance the siting and construction of renewable and alternative energy projects on municipally-owned land.

Website: www.mass.gov/doer

Eligible Applicants: Cities, Towns and other local governmental bodies

Estimated Application Deadline: TBD

Estimated FY 2009 Spending: TBD

Average Grant Size: TBD

Average # of Grants: TBD

FY 2008 Spending: N/A

Contact: [Meg Lusardi](#), (617) 626-7364

Federal Land and Water Conservation Fund

Agency: Executive Office of Energy and Environmental Affairs (EEA)

Description: The Federal Land & Water Conservation Fund (P.L. 88-578) provides up to 50% of the total project cost for the acquisition, development and renovation of park, recreation or conservation areas.

Website: <http://www.mass.gov/eea/dcs>

Eligible Applicants: Municipal conservation commissions, park departments, and certain agencies within EEA. Municipalities must have a current open space and recreation plan to apply, and the land must be open to the general public.

Estimated Application Deadline: July

Estimated FY 2009 Spending: TBD

Average Grant Size: Average \$424,000 (Minimum \$250,000, Maximum \$500,000)

Average # of Grants: Typically 5 per year.

FY 2008 Spending: \$470,000

Contact: [Melissa Cryan](#), (617) 626-1187

PARC - Parkland Acquisitions and Renovations for Communities

Agency: Executive Office of Energy and Environmental Affairs (EEA)

Description: Provides grant assistance to cities and towns to acquire parkland, develop new parks, or renovate existing outdoor public recreation facilities (formerly the Urban Self-Help Program).

Website: <http://www.mass.gov/eea/dcs>

Eligible Applicants: Any town with a population of 35,000 or more year-round residents, or any city regardless of size, that has an authorized park /recreation commission and conservation commission, is eligible to participate in the program. Communities that do not meet the population criteria listed above may still qualify under the "small town," "regional," or "statewide" project provisions of the program. Municipalities must have a current open space and recreation plan to apply, and the land must be open to the general public.

Estimated Application Deadline: July

Estimated FY 2009 Spending: \$8,000,000

Average Grant Size: Awards range from \$50,000 to \$500,000

Average # of Grants: 21-25

FY 2008 Spending: \$8,040,983

Contact: [Melissa Cryan](#), (617) 626-1171

Recreational Trails Program

Agency: Department of Conservation and Recreation (DCR)

Description: Provides funding support for a variety of motorized and non-motorized trail development and trail maintenance projects.

Website: <http://www.mass.gov/dcr/stewardship/greenway/regionalGrants.htm>

Eligible Applicants: Non-profits, government agencies, and municipalities

Estimated Application Deadline: Summer

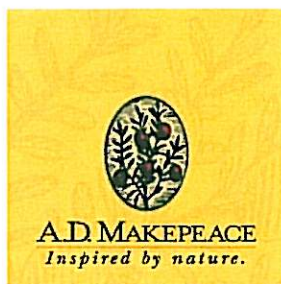
Estimated FY 2009 Spending: TBD

Average Grant Size: \$2,000 - \$50,000. Projects larger than \$50,000 considered for statewide projects

Average # of Grants: Varies

FY 2008 Spending: \$550,000

Contact: [Amanda Lewis](#), (413) 586-8706 x19



Makepeace Neighborhood Fund Announces Grants

May 13, 2009 | A.D. Makepeace | Linda Burke

WAREHAM – The Makepeace Neighborhood Fund has awarded \$158,000 in grants to 32 local organizations. The awards were announced at a ceremony at the Tihonet Village Market, on the grounds of the A.D. Makepeace Company, on May 13.

“This is the largest grant round we have done since the Fund was created in 2005,” said Christopher Makepeace, chairman of the Makepeace Neighborhood Fund Board of Trustees. “In these difficult times, we’re pleased to be able to support so many worthy projects.”

The charitable foundation, created by the A.D. Makepeace Company, provides grants to non-profit organizations and municipal agencies for projects in education, historic preservation, community housing, health care, and the environment. Since its inception, the Fund has awarded 89 grants totaling \$843,000.

This year, 82 proposals, requesting a total of more than \$627,000, were received.

In announcing the awards and distributing ceremonial checks to participants, Michael P. Hogan, president and CEO of the A.D. Makepeace Company, noted that the Wareham Public Schools once again received four grants totaling more than \$20,000 for equipment and enrichment programs.

Mr. Hogan singled out one grantee as being outstanding examples of the proposals received. The Carver Planning Department brought together Carver High School and the town’s new Cultural Council in a unique partnership that will allow the Council to tap into students’ artistic talents in promotional campaigns, while allowing students to fulfill community service requirements and learn about local issues.

“This project is a great example of how groups can benefit by working together,” Mr. Hogan said.

He also drew attention to the several programs designed to help at-risk youth navigate the school system then move on to the world of work. One program will help sixth graders make the transition to Wareham High School. Another will provide case management services to students at Plymouth North High School who are in danger of not graduating due to failing MCAS scores. A third will support job-seekers from throughout the region through a refurbished Career Center in Wareham.

The A.D. Makepeace Company, based in Wareham, is the world’s largest cranberry grower, the largest private property owner in eastern Massachusetts, and a recognized leader in environmentally responsible real estate development and land stewardship.

Grantees were:

- Alzheimer’s Association MA/NH Chapter, Education & Care for Patients and Families
- Boys & Girls Club of Greater New Bedford/Wareham, Summer Fun at Camp Victory
- Boys Scouts of America, Old Colony Council, Bldg Character for our Future Capital Campaign
- Carver Office of Planning & Community Development, Pilot Project: Tapping the Artistic Skills
- Carver Public Schools, Assistive Technology
- Church of the Pilgrimage, Window Replacement
- Community Nurse & Hospice Care, Inc, Home Care Services
- Good Shepherd’s Table, Health and Well-Being Forum
- Habitat for Humanity of Greater Plymouth, Inc, Carver Site Acquisition
- Habitat for Humanity, Buzzards Bay Area, Rochester Land Acquisition
- How On Earth, Farm to Table
- Jenney Grist Mill Inc, John Jenney Scholarship Fund
- Jordan Hospital dba Cranberry Hospice & Palliative, Integrating Palliative Arts & Complementary

Therapy

Junior Achievement of Southern MA, "Seeds of Success: Growing Hope in Wareham & Roche"

Middleborough Conservation Commission, Stuart Morgan Conservation Area Signs

My TURN, Inc, School-To-Work Program at Plymouth North HS

New Directions Southcoast, Inc, Wareham Career Center Classroom Equipment

Plimoth Plantation, Foundation for Kids

Plymouth Community Intermediate School, Camp Bournedale

Plymouth DPW Environmental Management Division, River Restoration Projects

Robbins Museum of Archaeology/MAS, Clues in Content: Connecting Culture, Context & Cur

Rochester Memorial School, Get SMART in Rochester

South Shore Community Action Council, Inc., Healthy Harvests

Upper Cape Cod Regional Technical School, Engines for Education

Wareham Area Committee for the Homeless, Inc., Baby Point Program

Wareham Early Childhood Education & Development, Enrichment Program To Enhance Skills

Wareham Land Trust, Inc., Agawam River Conservation Project

WPS: Wareham High School, Summer Program to Assist At Risk HS Students

WPS: Wareham High School, Cameras, Scanners and Printers, Oh My!

WPS: Wareham High School/English Department, Core/Advisory Initiative

WPS: Wareham Middle School, Project Team

YMCA Old Colony Plymouth Branch, Plymouth YMCA Teen Center

Contact:

Linda Burke, 508-322-4103

lburke@admakepeace.com



Cape Cod Cranberry Growers' Association


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Grower Grants & Programs

The following are some of the programs and grants available to Massachusetts cranberry growers. Please contact the CCCGA or the administering organization for more details.

Agricultural Environmental Enhancement Program (AEEP)- administered by MDAR
The Request For Response (RFR) for the Agricultural Environmental Enhancement Program (AEEP) for 2009 is now available at the [Department of Agricultural Resources web site](#).

The purpose of AEEP is to support the mitigation and/ or prevention of negative impacts to natural resources that may result from agricultural practices. Farmers selected to participate are reimbursed for the approved costs of materials up to \$30,000 used to install best management practices which improve water quality, conserve water or reduce greenhouse gas emissions. The program runs on the state Fiscal Year which runs from July 1, 2009 to June 30, 2010. The application period for FY 2010 closes on June 30, 2009.

While primarily a water quality program, AEEP will also fund practices that promote energy efficiency, water conservation, and reduce greenhouse gas emissions. Farmers selected to participate are reimbursed for the approved costs of materials up to \$30,000. A minimum of a 5% match is required of applicants. Most awards are in the \$10,000 to \$15,000 range.



Deadlines & Information:

- Initial responses must be received at MA Department of Agricultural Resources no later than **4:00 PM on June 30, 2009**
- Submission form available [here](#) or visit the [AEEP web site](#)

Agricultural Management Assistance (AMA) - administered by NRCS*
Provides cost-share assistance to agricultural producers to mitigate risk through production diversification or resource conservation practices. Cranberry practices include irrigation storage reservoir, wells, critical area planting.

Conservation Security Program (CSP)- administered by NRCS*
Provides ongoing stewardship of private agricultural lands by providing payments for maintaining and enhancing natural resources. The program is offered in selected priority watersheds across the state. The 2006 watershed is the Taunton River basin. Farmers need to complete a self-assessment to determine eligibility and then submit an application.

Environmental Quality Incentives Program (EQIP) - administered by NRCS *
Offers cost-share funds to provide technical expertise for planning and designing conservation practices. Some of the eligible practices include flume repair, renovation, irrigation automation, sanding, tail water recovery, dike construction/repair and channel work.

Farm Planning - administered by NRCS*
Used for planning and mapping of Best Management Practices for Massachusetts cranberry farming. A farm plan defines and explains the resources on a property, combining them into one comprehensive plan. This customized plan assist the land owner in making positive environmental and economic decisions, outlining both current and planned uses of a property and how they will be implemented to federal, state and local officials.

Farm Viability - administered by MA Department of Agricultural Resources
The Farm Viability Enhancement Program is a business planning program that provides technical assistance and advice to farmers who wish to diversify or modernize operations, remain efficient and competitive, and be environmentally sustainable. Learn more at the Department of Agriculture [web site](#) or download the [Request For Response](#). **Deadline is Thursday, June 25, 2009.**

Wetlands Reserve Program (WRP) - administered by NRCS*
This program offers payment, based on agricultural value, for wetlands that have been previously used as agriculture. Up to 100% reimbursement for restoration costs are available and the landowner retains control of access - no public access is required.

Wildlife Habitat Incentives Program (WHIP) - administered by NRCS*

This is a conservation program that provides technical and financial assistance to landowners for developing, improving or managing wildlife habitat or for restoring natural ecosystems on eligible land.

* [USDA NRCS Massachusetts Service Centers](#)

Barnstable County Hyannis: (508) 771-6476

Bristol County - Dighton: (508) 669-6621

Plymouth County - West Wareham: (508) 295-5151

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G. MENDERS, TORREY & SPENCER PRESENTATIONS



Wareham, Massachusetts

Tremont Nail Factory Site

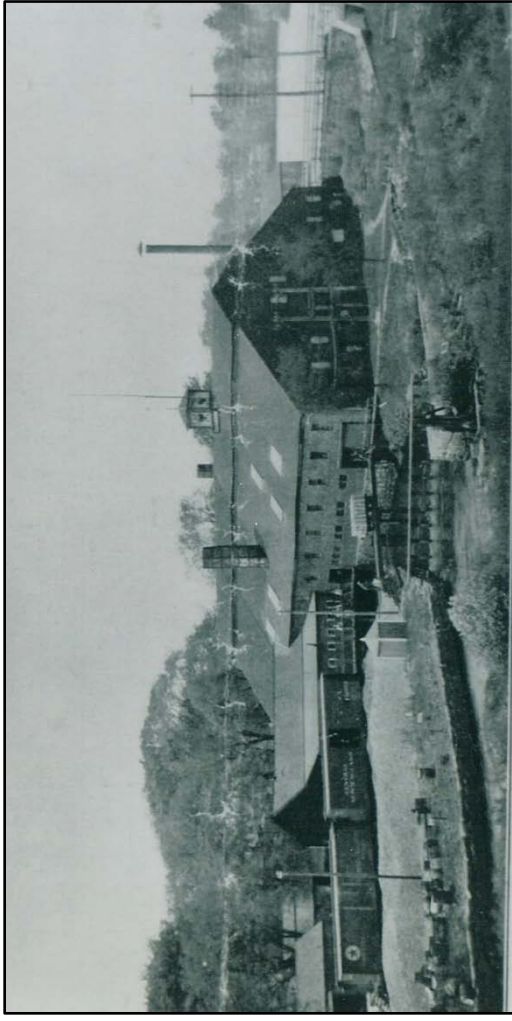
Working Meeting

February 5, 2009


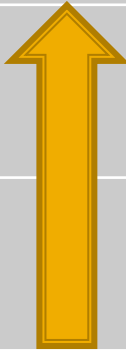



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Project Goals

- Developmental history
- Architectural/structural conditions assessment
- Adaptive reuse concept analysis
- Action plan



Project Timeline

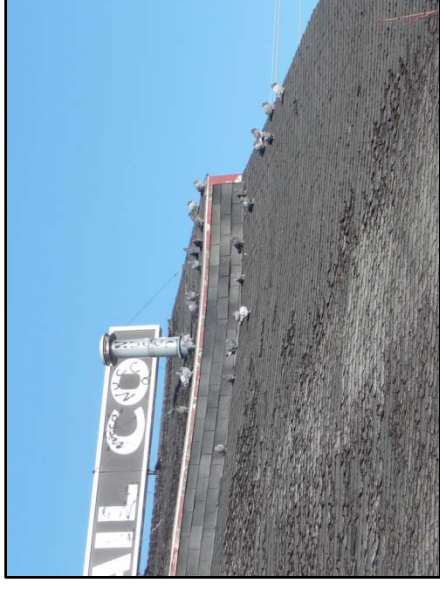
Architectural/Structural Assessment & Feasibility Study							
	# wks	Oct.	Nov.	Dec.	Jan.	Feb.	March
Phase I: Developmental History	4						
Phase II: Architectural Conservation Assessment	8						
Phase III: Adaptive Reuse Assessment	4						
Phase IV: Cyclical Maintenance Plan	2						
Phase V: Moving Forward/Final Report	4						

Developmental History

- Parallel development on Wankinco & Wewaeantit Rivers
- Connections among iron masters & families
- TNCo role in regional/national iron manufacturing & international market
- Remarkable adaptation & longevity of TNCo
- Significant survival of industrial/archeological artifacts

Conditions Assessment: Architectural

- Photographic documentation
- Square footage takeoffs
- Fabric assessment
- Preservation recommendations
- Identification of character defining features



Conditions Assessment: Architectural

- Representative findings
 - Exterior envelope – fair to poor condition
 - Water, water, water
 - Preservation recommendations
 - Patch or repair roofs
 - Repair rotted wood
 - Character defining features
 - Building & roof forms
 - Board & shingle cladding
 - Window configurations



Conditions Assessment: Structural

- Structural & civil engineering assessments
- Identification of emergency, short & long term issues
- Remediation recommendations



Conditions Assessment: Structural

- Representative findings
 - Office building: framing appears unsound
 - Steel building: column placement has damaged foundation; lateral braces cut
 - Factory building: catwalks unsafe
 - Pickling building: worst overall condition
 - Mitigation recommendations
 - Additional evaluation
 - Reinforce rafters & connections

Conditions Assessment: Mechanical

- Representative findings
 - Electrical & HVAC systems inadequate
 - Hazardous electrical conditions
 - Sprinkler piping system in relatively good condition



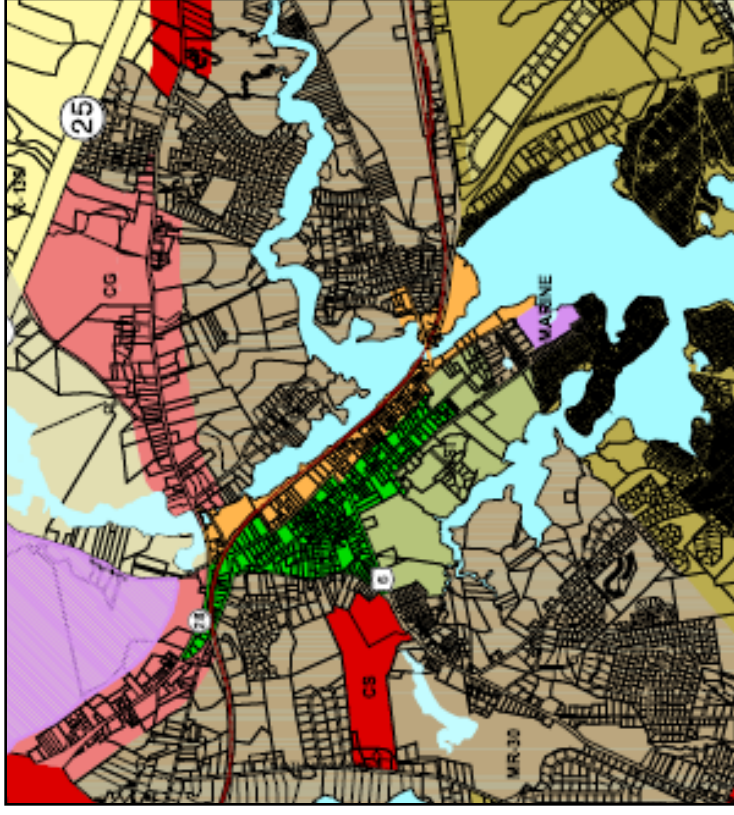
Conditions Assessment: Civil

- Representative findings
 - In progress
 - Sewer connection
 - Site wall conditions



Regulatory Issues

- Zoning code
 - Wareham Village I zone
 - Design guidelines
- Building code
- Wetlands & rivers
- Preservation restriction



Hazardous Waste

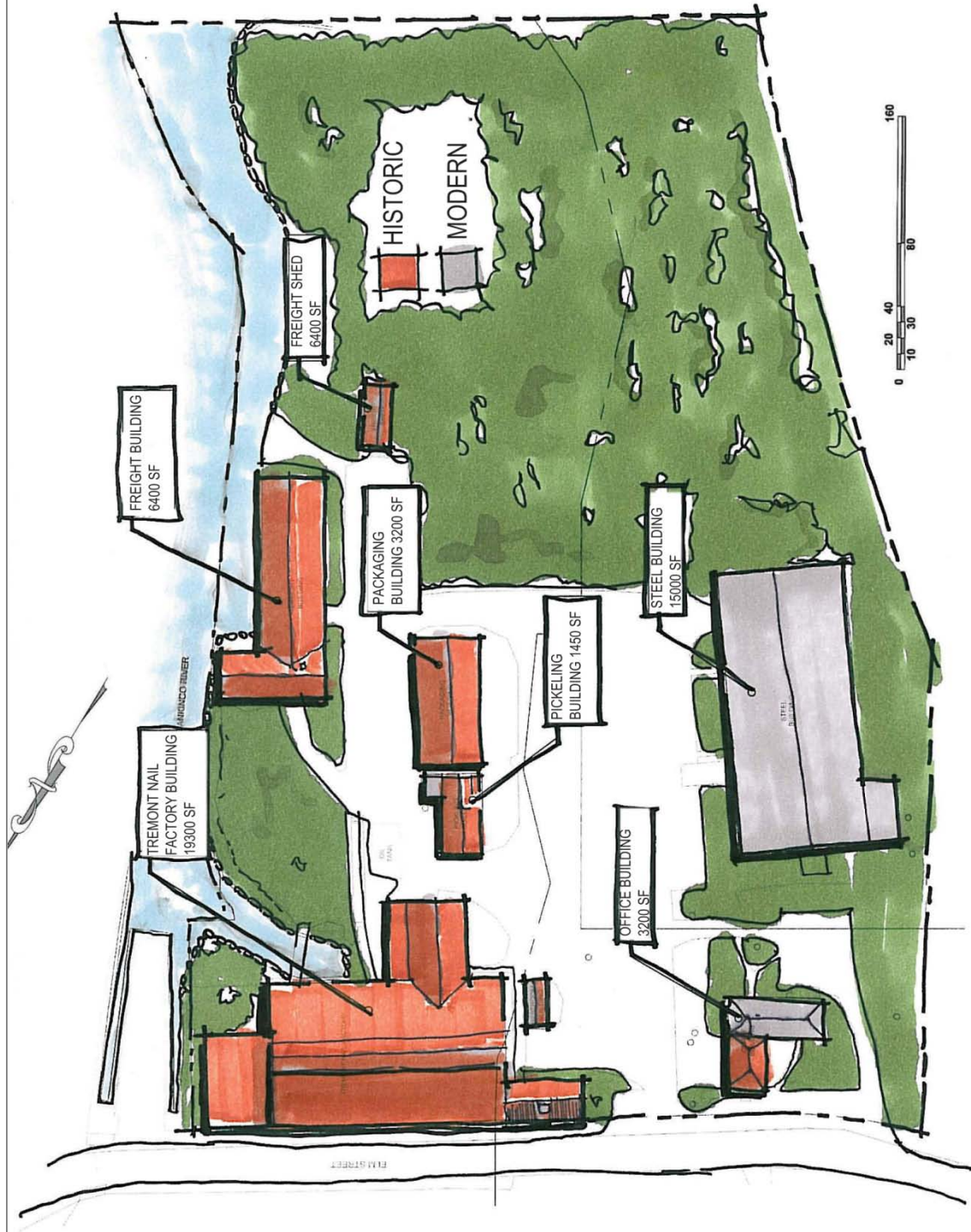
- Oil tank removed
- Potential chemical contamination (pickling building/other)
- Presume no 21E performed



Site Context



Existing Site Plan



Building Square Footage

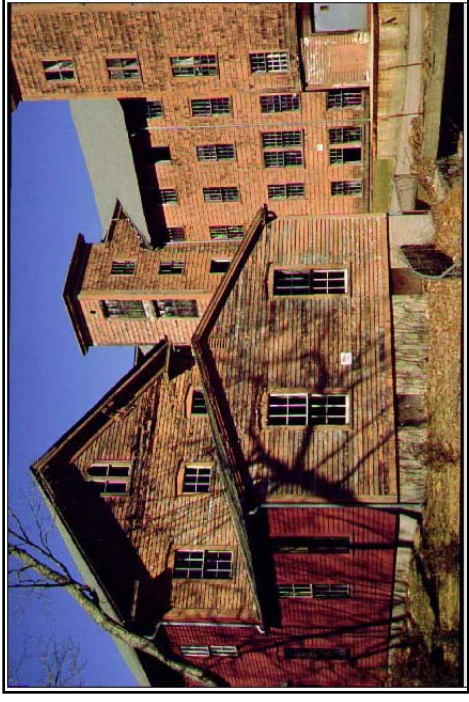
Building	Square Footage
Factory	19,300
Pickling	1,450
Packaging	3,200
Freight	6,400
Freight Shed	720
Steel	15,000
Office	3,200
Restroom	460
TOTAL	49,730

Adaptive Reuse Concept Analysis

- Guiding precepts
 - Retain/emphasize unique historic character of buildings & site
 - Compatible with material fabric of historic buildings
 - Compatible with preservation & conservation objectives
 - Consider Wareham's town planning goals
 - Employ Smart Growth strategies
 - Benefit from learnings at comparable sites

Comparable Site Development

- Central/Stanley Woolen Mill, Uxbridge, MA
 - Tourist-oriented retail



- Old Schwamb Mill, Arlington, MA
 - Mill-museum, rental offices, catalog showroom



Comparable Site Development

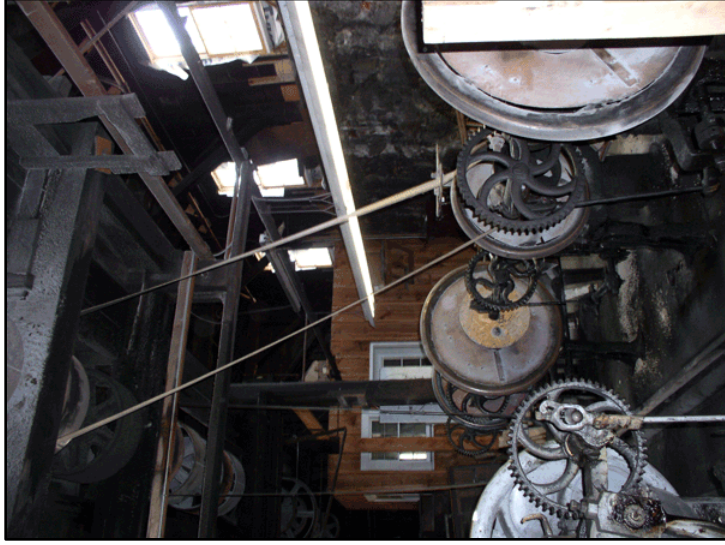
- Slade Spice Mill
Revere, MA
 - Extended stay lodging, museum
- Montague Bookmill
Montague, MA
 - Bookstore, retail, restaurant, entertainment



Building Development Guidelines

- Preserve key buildings
 - Forms, openings, materials, details (e.g. cupola)
 - Factory
 - 2-floor height; forge space
 - Machinery & tools
- Alteration by additions & new openings
- New construction
- Reversibility

Factory Rehabilitation



Factory: Interior Rehabilitation

- Permit a mezzanine at perimeter, maintaining center bay vault
 - Allows good visual access to roof framing & equipment
- If insulation required, add rough hewn boards as interior finish
- Heating & cooling can be plainly visible, consistent with factory aesthetic
- If foundation must be waterproofed, face new concrete with veneer stone
- Storm windows allowed on interior

Office Rehabilitation



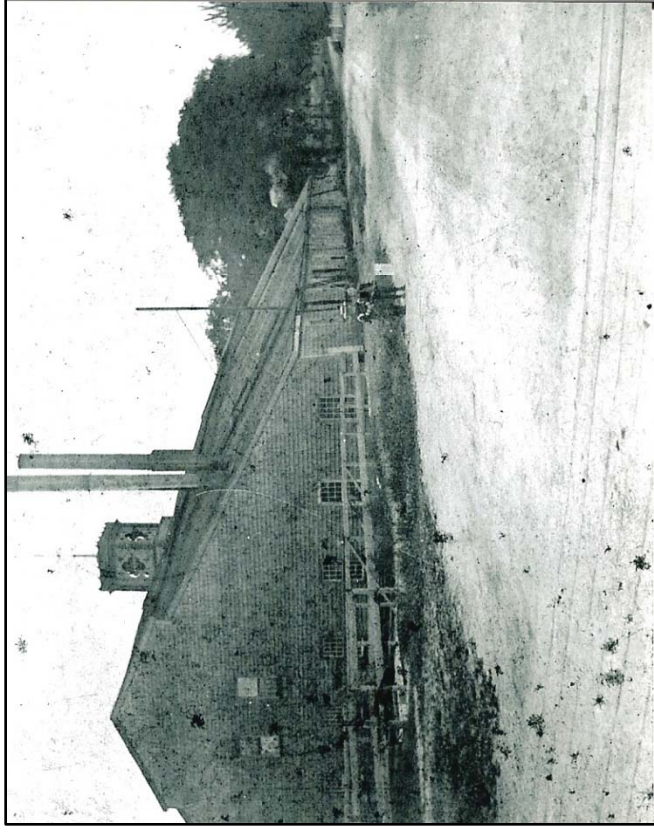
Office: Interior Rehabilitation

- Permit a second floor addition to new wing
- Remodel first floor (no historic fabric)
- Catalog historic material



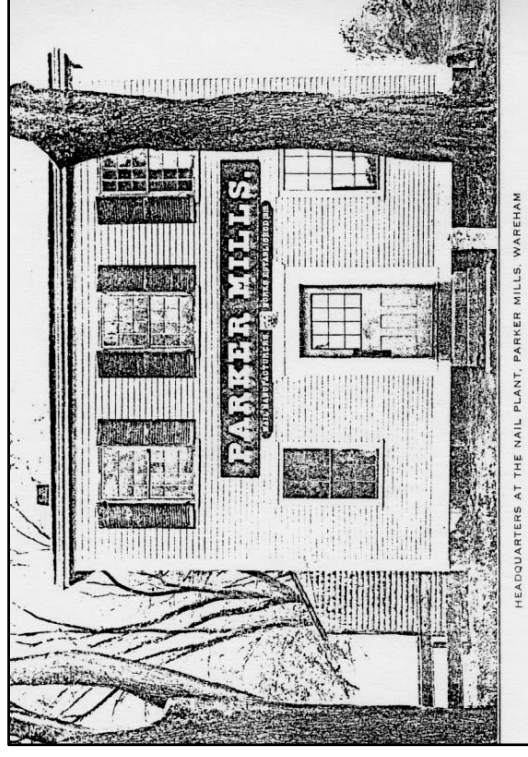
Possible Uses

- Factory
 - Retail/restaurant
 - Museum (preserve forge)
 - Office
 - Theater
 - Artist/artisan live-work space
 - Galleries
 - School



Possible Uses

- Office building
 - Improve appearance of new wing; add 2nd floor
 - Residential
 - Office
 - Retail
- Steel building
 - Storage
- Packaging/pickling buildings
 - Community space
- Freight building
 - Retail with waterfront emphasis
 - Restaurant

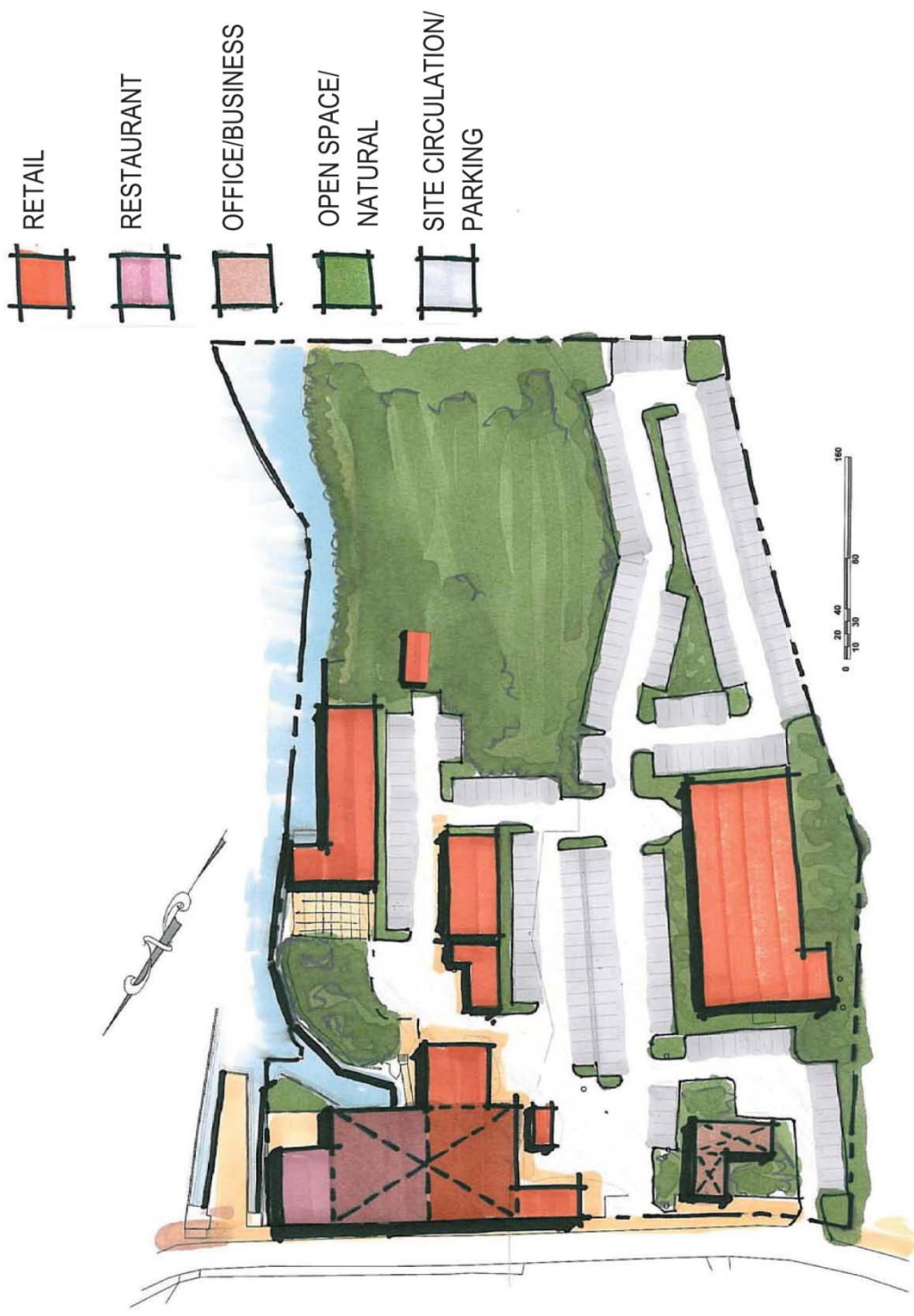


Site Development Guidelines

- Interpretive signage
- Preserve open space/restore natural setting
- River walk to downtown
- Partner on site water management (dam & spillway)
- Maintain required public access to water



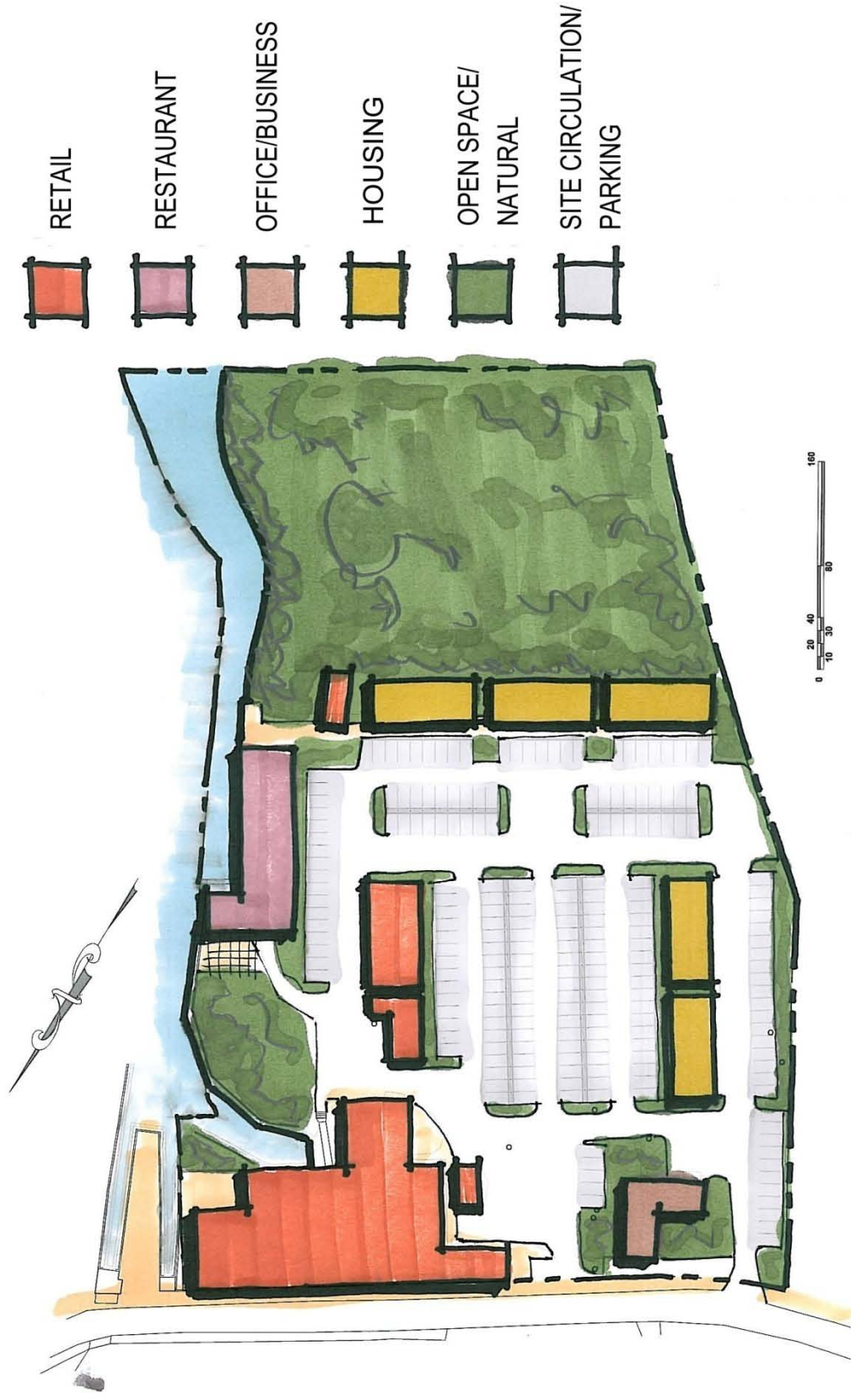
Site Development Concept A



Site Development Concept B



Site Development Concept C





Discussion

February 5, 2009

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Wareham, Massachusetts

Tremont Nail Factory Conditions Assessment & Feasibility Study

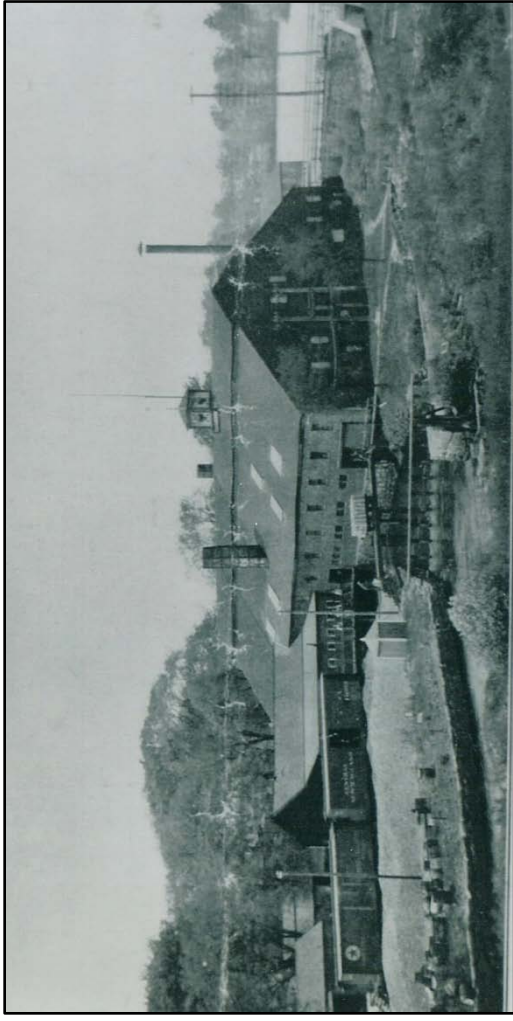
Final Presentation

June 4, 2009

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Project Goals

- Developmental history
- Architectural/structural conditions assessment & recommendations
- Adaptive reuse assessment
- Action plan



Final Report: Table of Contents

- Executive Summary & Methodology*
- Developmental History
- Existing Conditions Assessment & Recommendations
 - Site Assessment
 - Architectural Assessment

Final Report: Table of Contents

- Adaptive Reuse Assessment
 - Adaptive Reuse at Comparable Sites*
 - Compatible Reuse Options & Conceptual Site Plans
 - Summary Cost Estimates
 - Implementation Plan
- Cyclical Maintenance Plan
- Appendices*

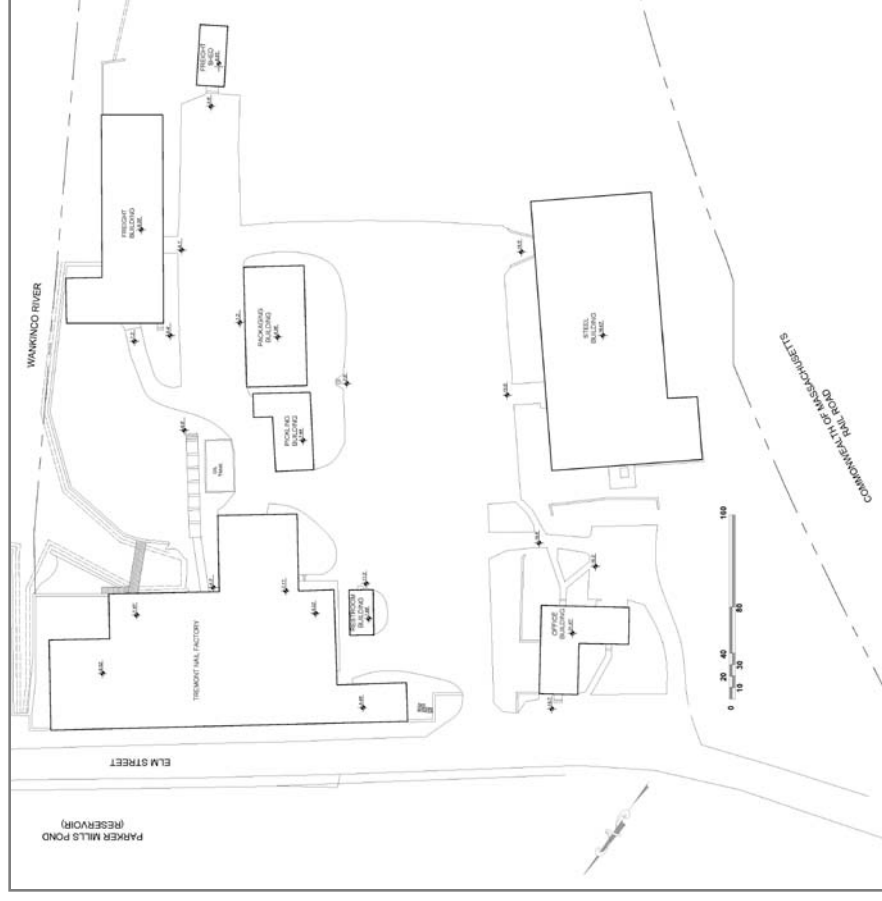
Existing Conditions: Site

- Characteristics
 - Water, water, water!
 - 6 of 7 acres in flood zone
 - Protected ecosystem
 - Preexisting conditions (eg. pavement) offer development opportunities
 - Storm water management
 - Municipal water & sewer



Existing Conditions: Site

- Character Defining Features
 - Spatial relationships between buildings & river
 - Natural landscape
 - Parker Mills dam
 - Fish ladder
 - Building arrangement & density

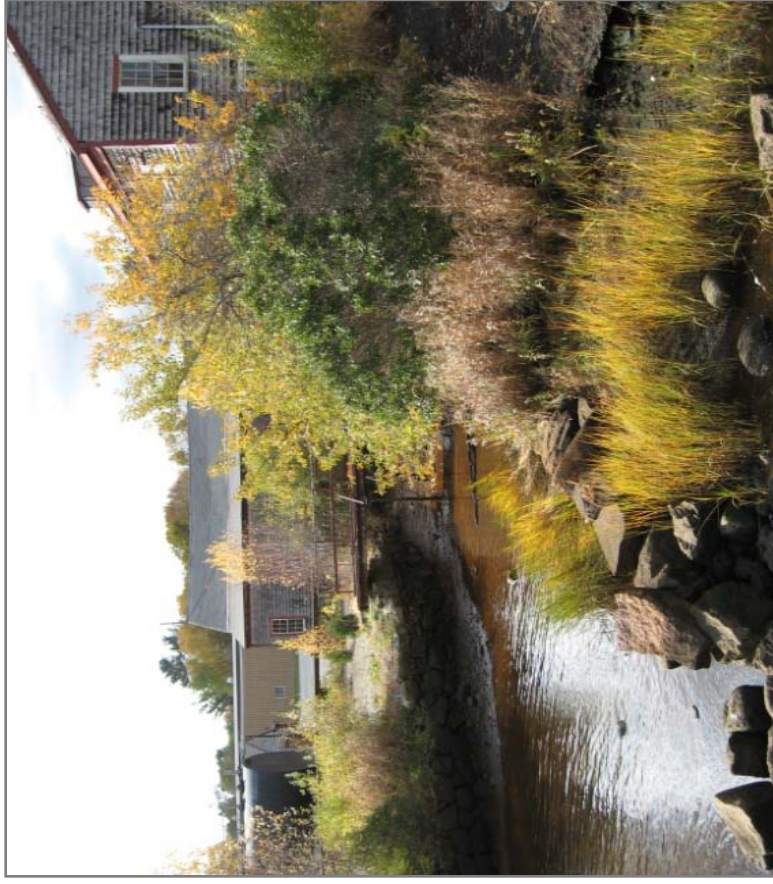


Existing Conditions: Site

- Significance
 - Must retain/protect water features & building relationships
- Recommended Actions
 - Step 1:
 - Continue to lease Steel Building
 - Delay further leasing until economics studied
 - Maintain access to kayak launch
 - Maintain wetlands & river protection buffers
 - Investigate water management of dam
 - Keep site clear of unauthorized use
 - Maintain security lighting

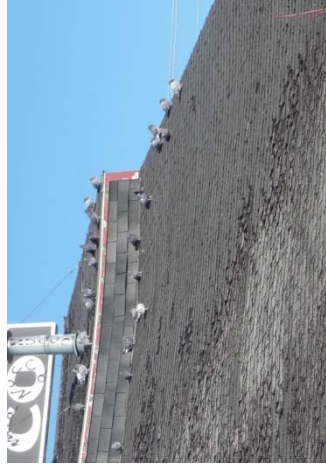
Existing Conditions: Site

- Step 2:
 - Create interpretive signage program
- Step 3:
 - Implement development plan using design guidelines



Existing Conditions: Nail Factory

- Characteristics
 - Circa 1846, wood frame, 19,225 SF
 - Exterior
 - Roof – asphalt shingles poor to fair; rubber good
 - Flashing, gutters & downspouts – worn to fair
 - Walls – wood shingles good at top, worn near bottom
 - Windows & doors – worn to fair
 - Foundation - fair



Existing Conditions: Nail Factory

- Interior

- Framing – timbers poor to fair; sheathing poor to fair; catwalks & stairs poor; infill good
- Foundation – water infiltrated, fair
- Floors – poor to fair
- Blacksmith shop chimney - poor



Existing Conditions: Nail Factory

- Structural
 - Overall condition fair – water infiltration and foundation issues
- Mechanical Systems
 - Plumbing – no useable fixtures
 - Heating & Cooling – inadequate, non-code compliant
 - Electrical – older, non-code compliant
 - Detection & Suppression – inadequate coverage

Existing Conditions: Nail Factory

- Character Defining Features
 - Rectangular plan
 - Gable roof, ridge monitor, cupola
 - Shingle cladding
 - Exposed interior framing
 - Six-lite double hung & hopper windows
 - Batten doors
 - Exterior signs
 - Building orientation relative to water
 - Nail making machinery
 - Blacksmith forge
 - Machine shop tools & equipment



Existing Conditions: Nail Factory

- Significance
 - Must retain – defining structure essential to site
- Recommended Actions
 - Repair blacksmith shop chimney - \$20,000
 - Replace asphalt shingle roof on main factory, south & west ells - \$150,000

Existing Conditions: Pickling Building

- Characteristics
 - Pre-1896, wood frame, 1,450 SF
 - Exterior
 - Roof – asphalt shingles fair to good; tar & gravel poor
 - Gutters & downspouts – none
 - Walls – wood shingles worn to good at top, poor near bottom
 - Windows & doors – worn to fair
 - Foundation - fair



Existing Conditions: Pickling Building

- Interior
 - Framing – poor
 - Floor – fair
- Structural
 - Overall condition poor & unsuitable for active use; entire structure requires reinforcement
- Mechanical Systems
 - Detection adequate
 - Other systems Inadequate or non-existent, non-code compliant



Existing Conditions: Pickling Building

- Character Defining Features
 - Rectangular plan
 - Gable roof
 - Shingle cladding
 - Exposed interior framing
 - Roof monitor
 - Six-lite hopper & double hung windows
 - Sliding barn doors



Existing Conditions: Pickling Building

- Significance
 - May be retained or removed –significantly altered
- Recommended Options
 - Stabilize to preserve - \$15,650
 - Dissassemble & store - \$14,000
 - Reconstruct - \$217,500

Existing Conditions: Packaging Building

- Characteristics
 - Circa 1957, wood frame, 3,200 SF
 - Exterior
 - Roof – asphalt shingles good
 - Flashing, gutters & downspouts – good
 - Walls – wood shingles worn to good
 - Windows & doors – windows fair; sliding doors worn
 - Foundation - fair



Existing Conditions: Packaging Building

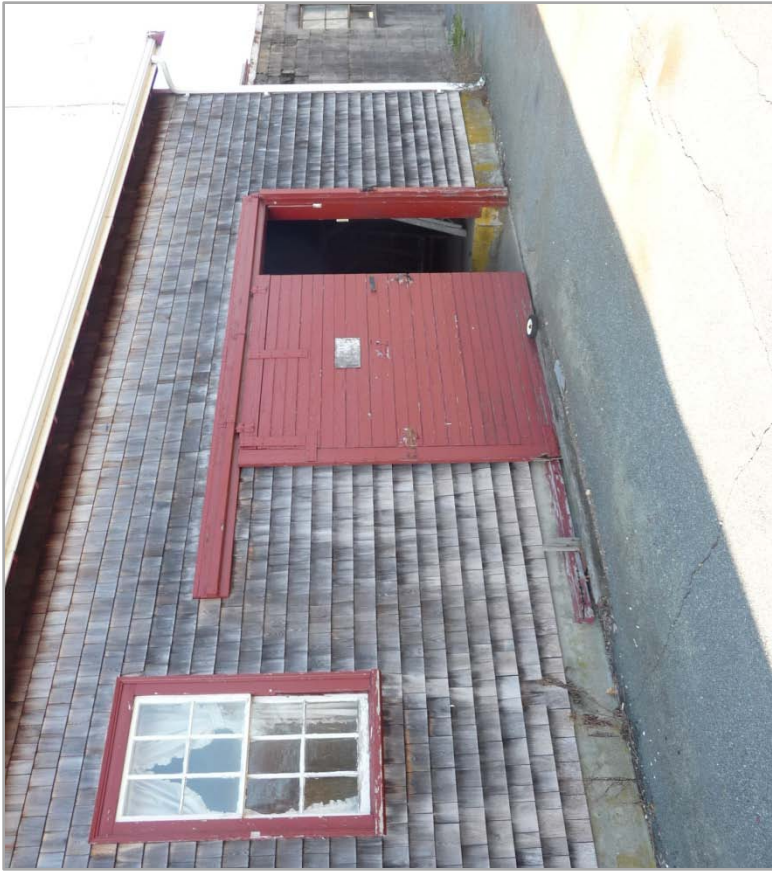
- Interior
 - Framing – fair
 - Floor – fair
- Structural
 - Overall condition fair
- Mechanical Systems
 - Detection – adequate
 - Other systems – inadequate or non-existent, non-code compliant



Existing Conditions: Packaging Building

- Character Defining Features

- Rectangular plan
- Gable roof
- Shingle cladding
- Exposed interior framing
- Six-lite double hung windows
- Sliding barn doors



Existing Conditions: Packaging Building

- Significance
 - May be retained or removed; most stable of historic buildings
- Recommended Options
 - Stabilize to preserve - \$25,940
 - Rehabilitate - \$480,000 - \$960,000

Existing Conditions: Freight Building

- Characteristics
 - Circa 1848 & later, wood frame, 6,400 SF
 - Exterior
 - Roof – asphalt shingles poor to worn
 - Chimney - fair
 - Gutters & downspouts – none
 - Walls – wood shingles poor to worn
 - Windows & doors – windows worn; doors fair
 - Foundation - fair



Existing Conditions: Freight Building

- Interior
 - Framing – good
 - Chimney - poor
- Structural
 - Overall condition fair; sill should be replaced & anchored; some posts require reinforcement or replacement
- Mechanical Systems
 - Detection – adequate
 - Other systems – inadequate or non-existent, non-code compliant



Existing Conditions: Freight Building

- Character Defining Features
 - Shingle cladding
 - Exposed interior framing
 - Six-lite double hung windows
 - Bulkhead on river side
 - Setting on river bank

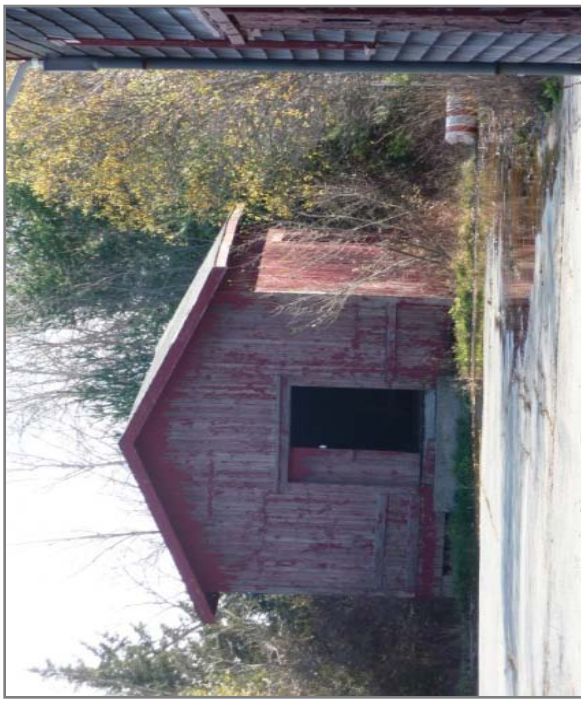


Existing Conditions: Freight Building

- Significance
 - Must be retained – key to understanding factory site operation
- Recommended Options
 - Stabilize to preserve for storage & seasonal concession - \$229,590
 - Rehabilitate for public use - \$960,000 - \$1,920,000

Existing Conditions: Freight Shed

- Characteristics
 - Circa 1900, wood frame, 720 SF
 - Exterior
 - Roof – asphalt shingles fair
 - Chimney – fair
 - Gutters & downspouts – none
 - Walls – wood plank fair
 - Windows & doors – windows fair; doors poor to fair
 - Foundation - worn



Existing Conditions: Freight Shed

- Interior
 - Framing – fair
- Structural
 - Overall condition worn; requires reinforcement
- Mechanical Systems
 - None



Existing Conditions: Freight Shed

- Character Defining Features
 - Vertical board cladding
 - Exposed interior framing
 - Six-lite double hung windows
 - Freight doors



Existing Conditions: Freight Shed

- Significance
 - May be retained or removed; located within wetlands buffer
- Recommended Options
 - Stabilize to preserve - \$17,500
 - Rehabilitate for seasonal storage - \$15,000

Existing Conditions: Steel Building

- Characteristics
 - 1976, pre-fab metal, 15,000 SF
 - Exterior
 - Roof – membrane good
 - Flashing, gutters & downspouts – good
 - Walls – metal good
 - Windows & doors – fair to good
 - Foundation - good



Existing Conditions: Steel Building

- Interior
 - Framing – good
- Structural
 - Overall condition good; some construction irregularities
- Mechanical Systems
 - Plumbing – not water saving or accessible
 - Heating – functional
 - Cooling - none
 - Electrical – new and code compliant
 - Detection – none
 - Suppression – adequate



Existing Conditions: Steel Building

- Character Defining Features
 - None
- Significance
 - May be removed
- Recommended Action
 - Short-term repairs for continued leasing - \$3,500
 - Remove & clean site - \$142,500

Existing Conditions: Office Building

- Characteristics
 - Circa 1848 & later, wood frame, 3,200 SF
 - Exterior
 - Roof – asphalt shingles good
 - Chimney – worn
 - Flashing, gutters & downspouts – good
 - Walls – vinyl siding good; clapboards worn
 - Windows & doors – poor to fair
 - Foundation – good
 - Concrete steps - poor



Existing Conditions: Office Building

- Interior
 - Basement – worn to fair
 - Framing – main building worn to fair; addition good
 - Stove chimney – worn to fair
 - Finishes – main building worn to fair; addition good



Existing Conditions: Office Building

- Structural
 - Overall condition fair in main building and good in addition; second floor investigation required
- Mechanical Systems
 - Plumbing – not water saving or accessible
 - Heating – functional
 - Cooling - none
 - Electrical – new and code compliant
 - Detection – none
 - Suppression – adequate



Existing Conditions: Office Building

- Character Defining Features
 - Stone retaining walls
 - Clapboard siding
 - 12/12 & 6/6 windows
 - 12-lite paneled front door
 - Entrance door surround
 - Sign over entrance
 - Exterior corner boards
 - Freight door
 - Interior (second floor) – corner posts, original doors & hardware, original trim, coat pegs, stove chimney



Existing Conditions: Office Building

- Significance
 - Must be retained; architecturally and historically significant to site
- Recommended Action
 - Step 1: Investigate 2nd floor framing, evaluate wall papers, inventory artifacts & repair envelope - \$21,500
 - Step 2: Miscellaneous structural repairs - \$13,500
 - Step 3: Rehabilitate for lease use - \$450,000 (+ \$225,000 to construct 2nd floor)

Existing Conditions: Restroom Building

- Characteristics
 - Circa 1953, wood frame, 460 SF
 - Exterior
 - Roof – asphalt shingles fair
 - Gutters & downspouts – none
 - Walls – wood shingles worn
 - Windows & doors – worn to fair
 - Foundation – good



Existing Conditions: Restroom Building

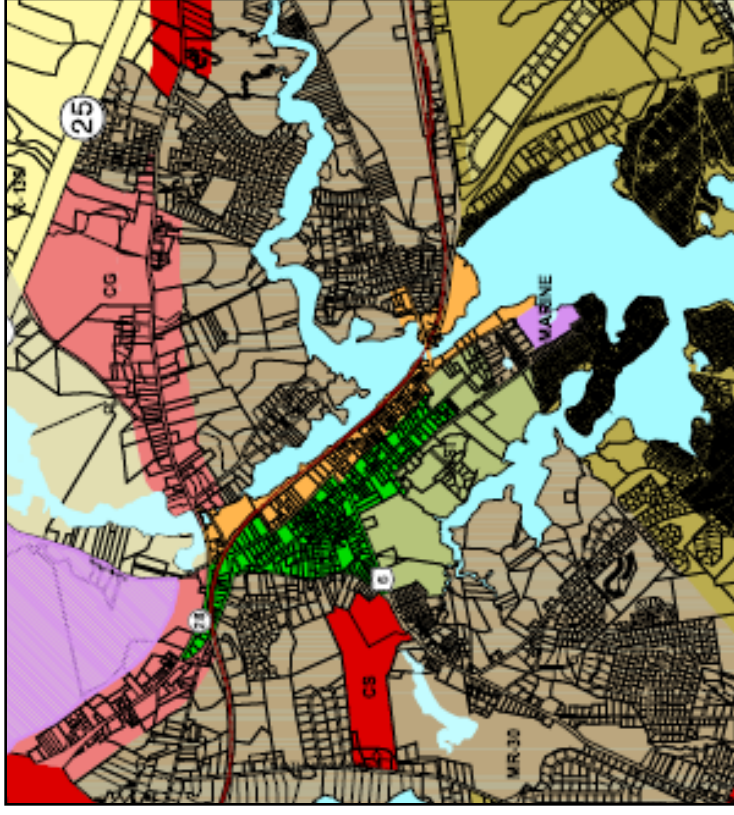
- Interior
 - Finishes – fair to good
- Structural
 - Overall condition fair; some reinforcement required
- Mechanical Systems
 - Plumbing – not water saving or accessible
 - Heating – functional
 - Cooling - none
 - Electrical – dated but code compliant
 - Detection – adequate
 - Suppression – none

Existing Conditions: Restroom Building

- Character Defining Features
 - Not applicable
- Significance
 - May be retained or removed; undistinguished but useful
- Recommended Action
 - Step 1: Envelope & plumbing repairs - \$12,000
 - Step 2: Rehabilitate plumbing & make building accessible - \$150,000

Adaptive Reuse: Regulatory Issues

- Zoning code
 - Wareham Village I zone
 - Design guidelines
- Building code
- Wetlands & rivers
- Preservation restriction



Adaptive Reuse: HazMat Issues

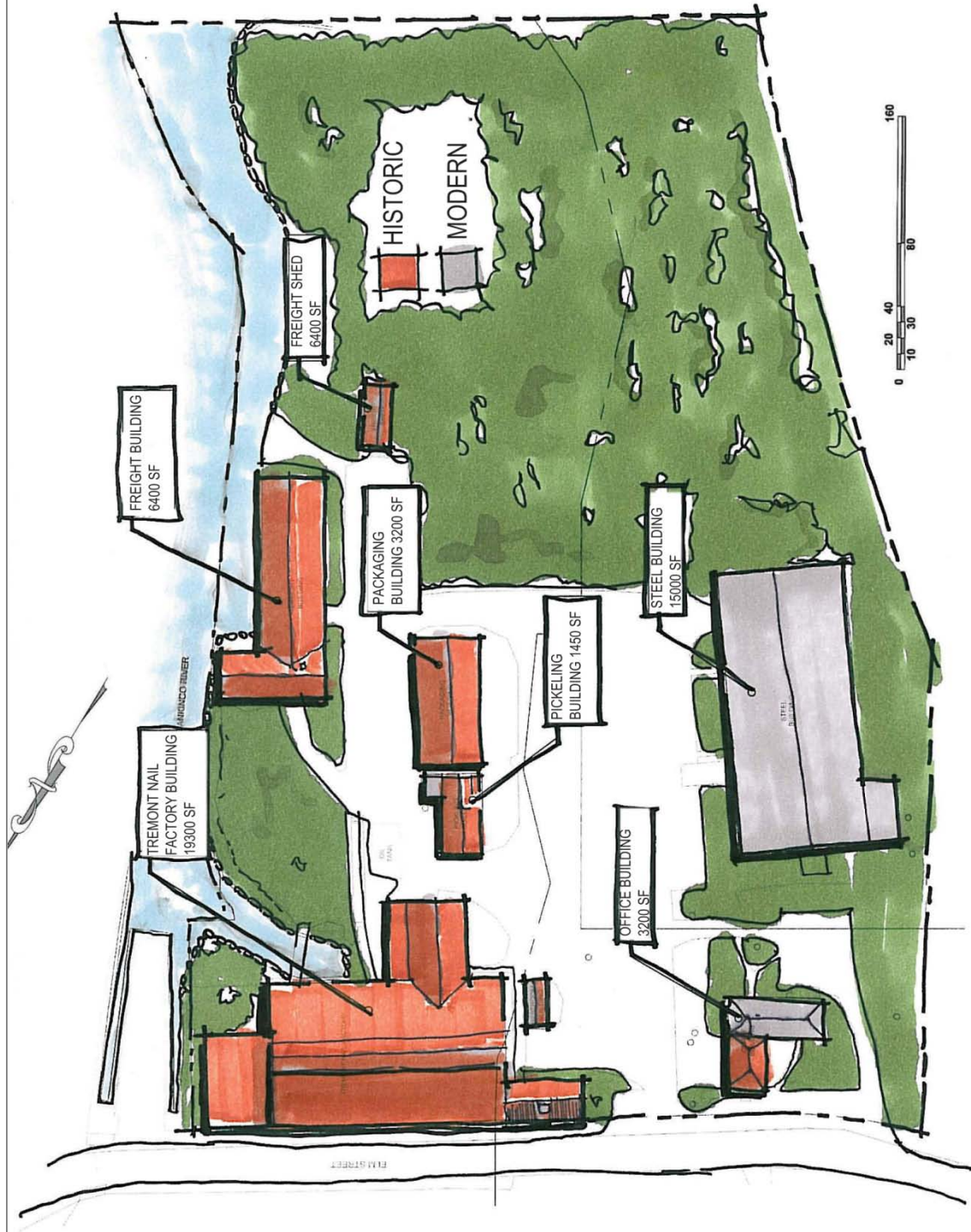
- Oil tank removed
- Potential chemical contamination (pickling building/other)
- Presume no 21E performed



Adaptive Reuse: Site Context



Existing Site Plan



Building Square Footage

Building	Square Footage
Factory	19,300
Pickling	1,450
Packaging	3,200
Freight	6,400
Freight Shed	720
Steel	15,000
Office	3,200
Restroom	460
TOTAL	49,730

Adaptive Reuse Basis & Rationale

- Guiding precepts
 - Retain/emphasize unique historic character of buildings & site
 - Compatible with material fabric of historic buildings
 - Compatible with preservation & conservation objectives
 - Consider Wareham's town planning goals
 - Revitalization of Village Center
 - Demand for retail & professional/business office space
 - Demand for centrally-located residential property & affordable housing
 - Demand for waterfront recreation & public gathering spaces

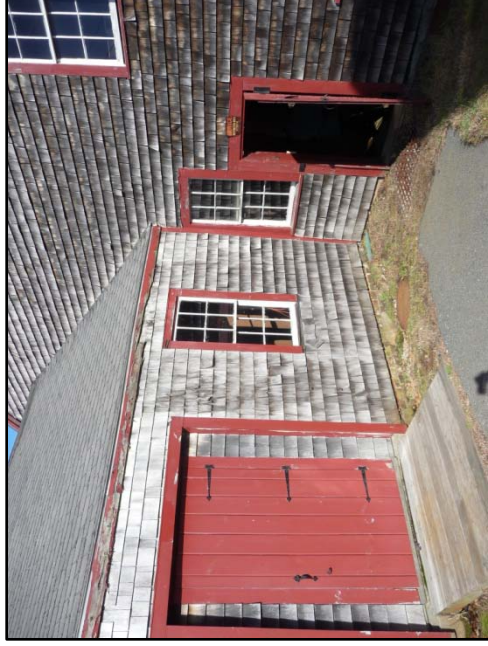
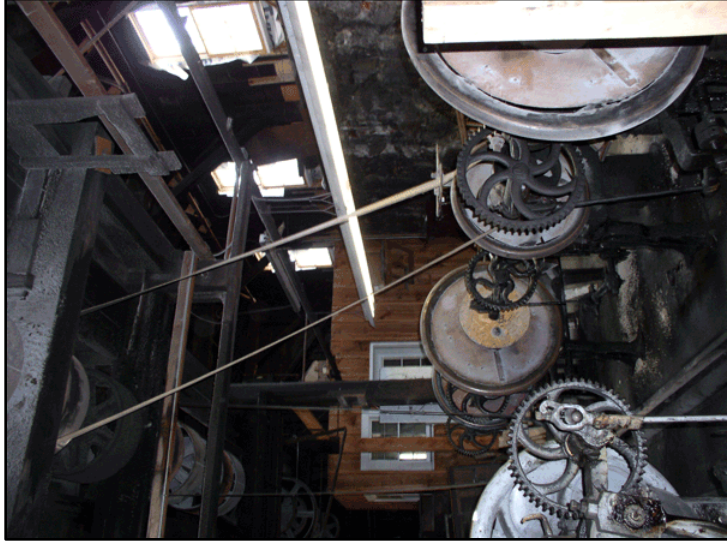
Adaptive Reuse Basis & Rationale

- Employ Smart Growth strategies consistent with town's vision
 - Preserve existing structures
 - Embrace high density, mixed use development
- Incorporate learnings from comparable reuse sites
- Exploit synergies with local/regional initiatives
 - Commuter rail expansion
 - Bikeway
 - River Walk
 - National Cranberry Heritage Area

Building Development Guidelines

- Preserve key buildings
 - Forms, openings, materials, details (e.g. cupola)
 - Factory
 - 2-floor height; forge space
 - Machinery & tools
- Alteration by additions & new openings
- Compatible new construction
- Reversibility

Factory Reuse



Factory Reuse

- Most significant structure on the site
- Defining elements must remain visible
 - Open vault, exposed framing, rough interior finish, bank-built foundation, forge, machinery
- Minimal space subdivision
- Installation of mezzanine to permit close viewing
- Initially, seasonal use as marketplace or artisan workshops
- Later, year round use as theater, museum, or restaurant

Office Reuse



Office Reuse

- Continue use as office building
- Permit a second floor addition to new wing
- Remodel first floor (no historic fabric)
- Catalog historic material



New Housing Component

- Key aspect of Smart Growth
- Addresses Wareham's housing needs
- Introduces permanent population to site
- Multi-unit structures
 - Designed to reflect tenement style buildings originally on site



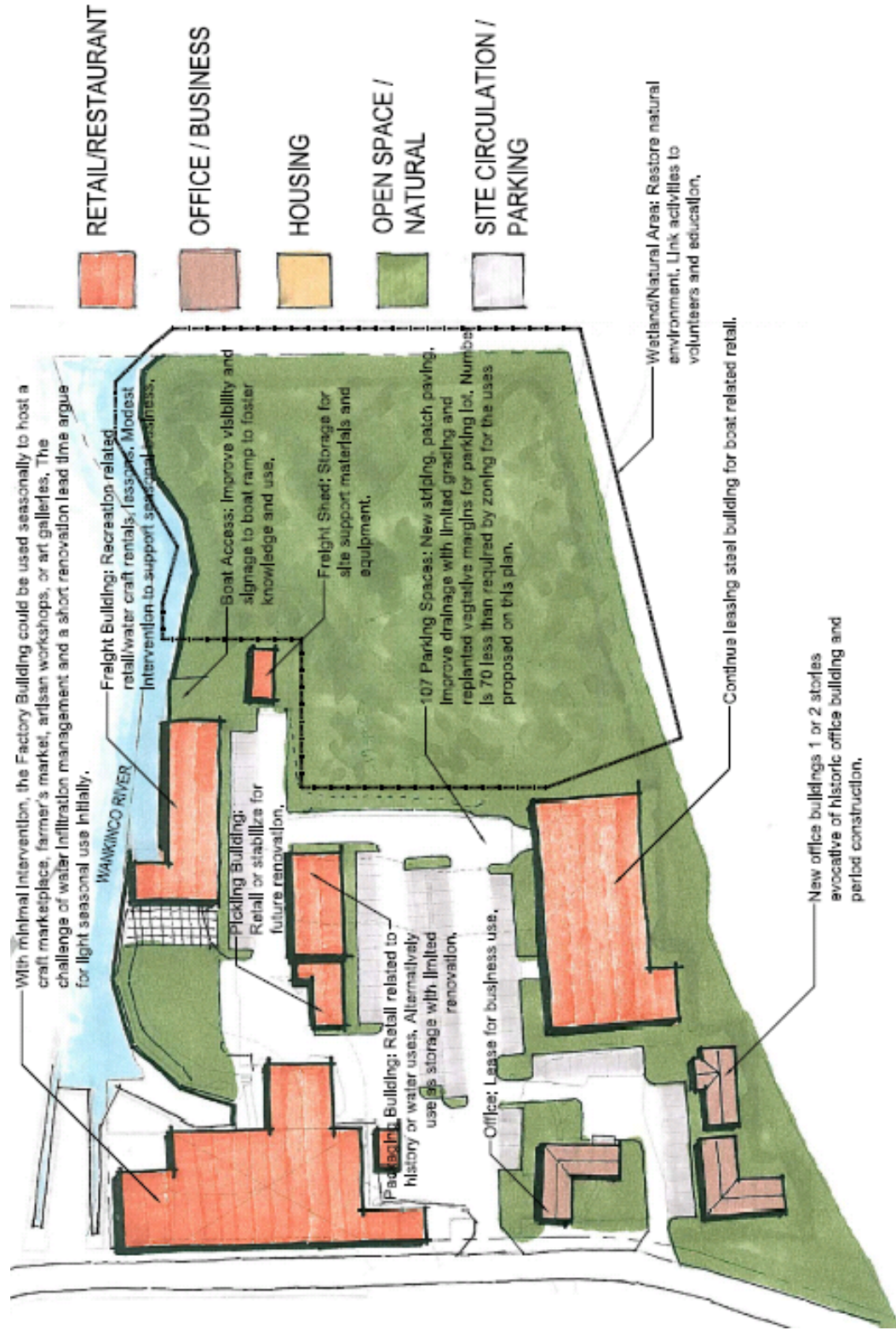
Reuse of Other Historic Buildings

Packaging Building, Pickling Building, Freight Building, Freight Shed

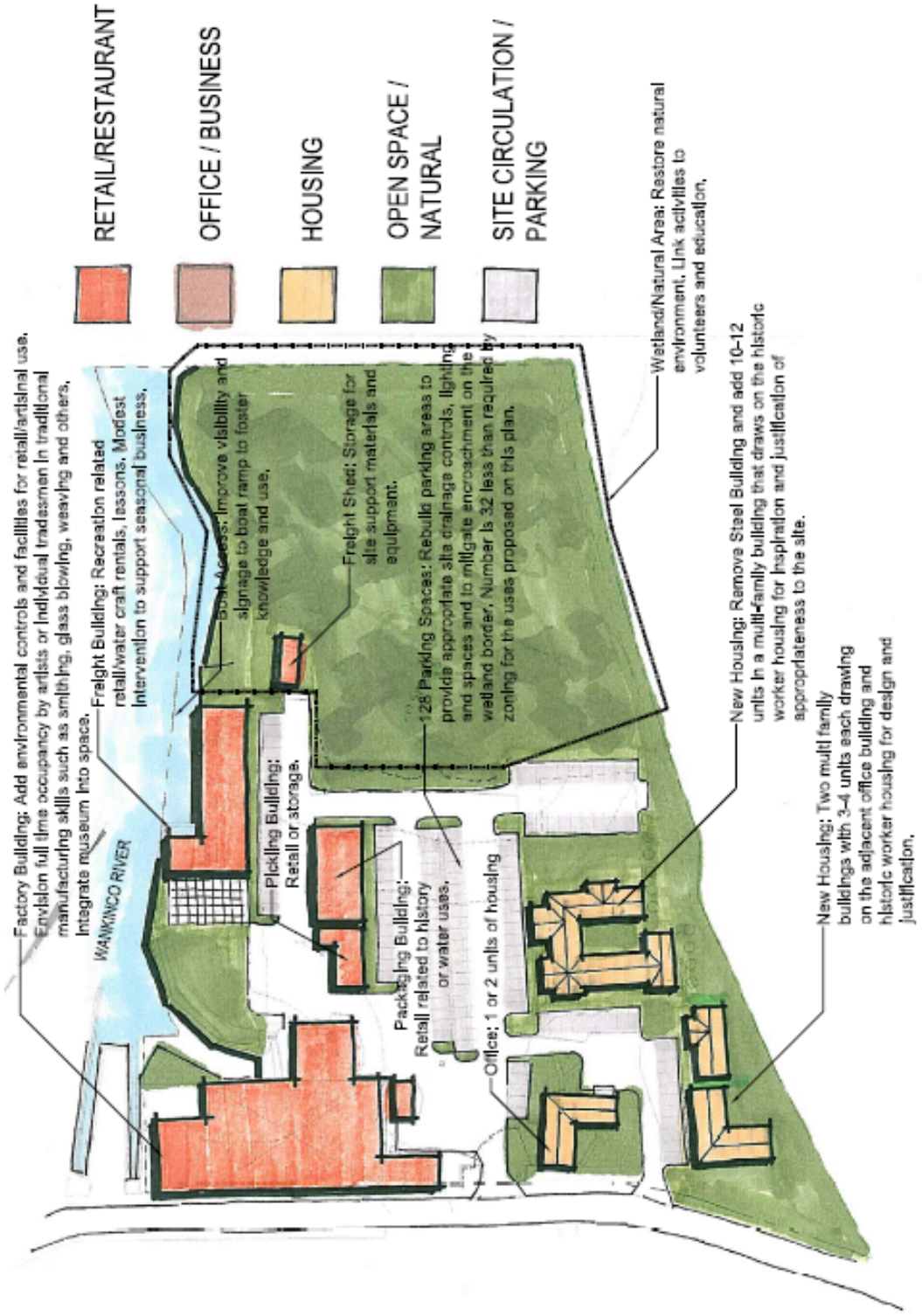
- All close to kayak launch & open space
- Repurposed for:
 - Recreation
 - Retail
 - Recreation-related retail



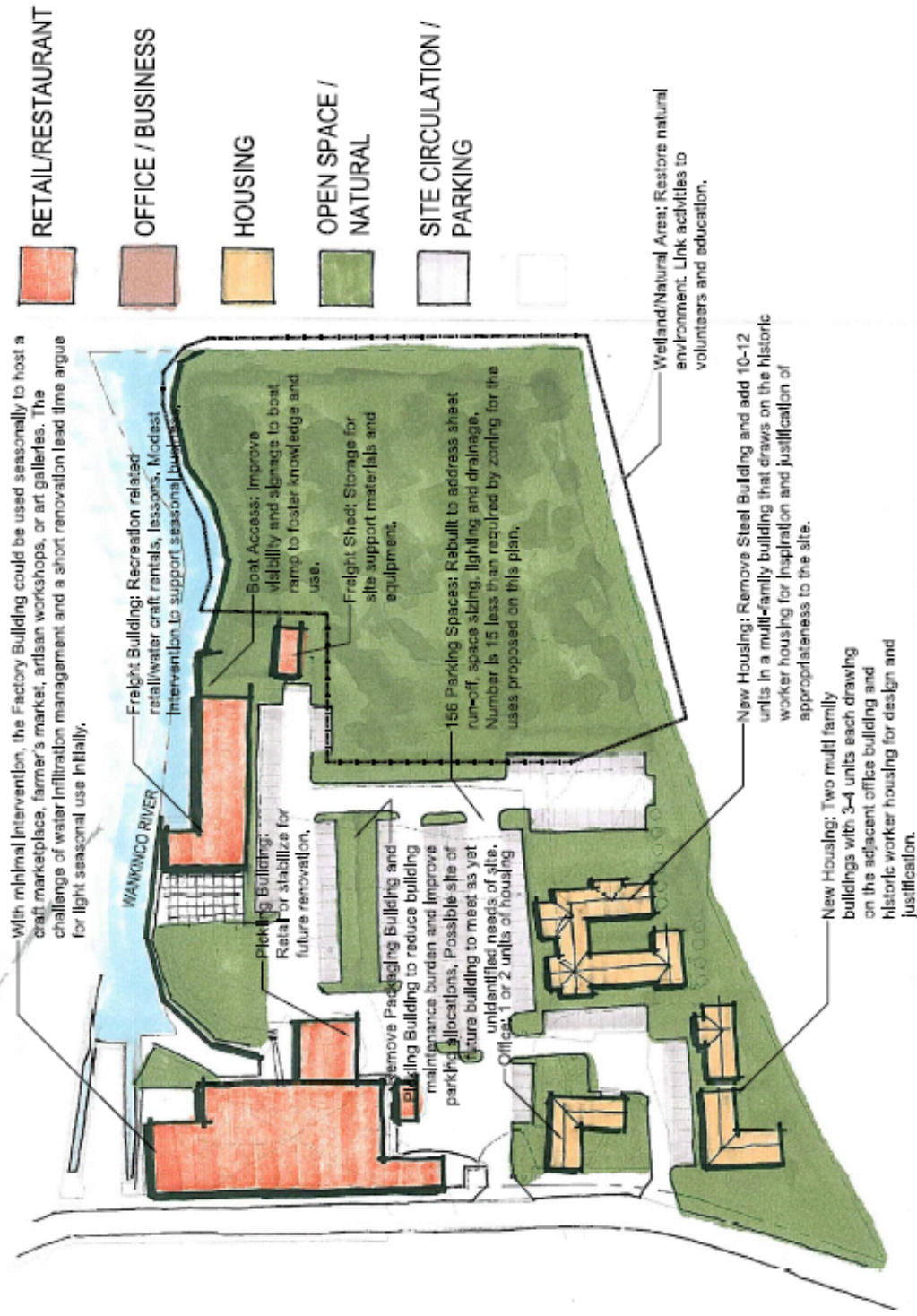
Site Development Option One



Site Development Option Two



Site Development Option Three



Summary Cost Estimates

Building Stabilization

Building	Activity	Cost
Nail Factory Building	Stabilize framing & envelope; rebuild chimney	218,100
Pickling Building	Stabilize framing & envelope	15,650
Packaging Building	Stabilize envelope & regrade	25,940
Freight Building	Stabilize envelope	17,500
Freight Shed	Stabilize envelope	17,500
Steel Building	Minor repairs	3,500
Office Building	Engineering investigation, evaluations & envelope repairs	21,500
	Misc. structural repairs	13,500
Restroom Building	Envelope & misc. repairs	12,000
	TOTAL	557,280

Summary Cost Estimates

Site & Building Rehabilitation

Building	Activity	Cost
Site	Rehabilitation of paved areas	1,510,000
Nail Factory Building	Rehabilitation - medium cost	4,287,000
Pickling Building	Disassemble	231,500
Packaging Building	Rehabilitation – medium cost	800,000
Freight Building	Rehabilitation – medium cost	1,600,000
Freight Shed	Rehabilitate for seasonal storage	15,000
Steel Building	Remove & clean site	142,500
Office Building	Rehabilitation – low cost	450,000
	Construct 2 nd floor	225,000
Restroom Building	Rehabilitation – low cost	150,000
	TOTAL	9,411,000

Implementation Plan

- Immediate Steps & Priorities
 - Building stabilization – High
 - Community involvement – High
 - Preservation restriction – High
 - Town infrastructure improvements – High
 - Resolving dam issues – Medium
 - Site lighting – Medium
 - Site interpretation – Medium

Implementation Plan

- Next Steps & Priorities
 - Structural investigations – High
 - Nail Factory & Office Building
 - Wetlands limitations – High
 - Economic feasibility study – High
 - Grant/funding research – High
 - Inventory artifacts – Medium
 - Museum committee – Medium
 - Comparable site visits – Medium
 - On-site power generation research – Medium

Implementation Plan

- Ongoing Activities
 - Protection – enforce preservation restriction, include site in Local Historic District
 - Maintain stabilized buildings
 - Restore buildings as funds allow
 - Rehabilitate buildings as funds allow
 - Identify seasonal tenants
 - Identify leasing tenants
 - Conduct site events (fairs, festivals, performances)
 - Build additions as funds allow
 - New construction as funds allow

Cyclical Maintenance Plan

- Plan & budget for anticipated exterior work over life cycle of buildings
- Object is to increase lifespan of materials
- Annual inspection – single most important activity
- Estimated annual maintenance cost - \$23,150

Cyclical Maintenance Plan

Tremont Nail Factory
Wareham, MA

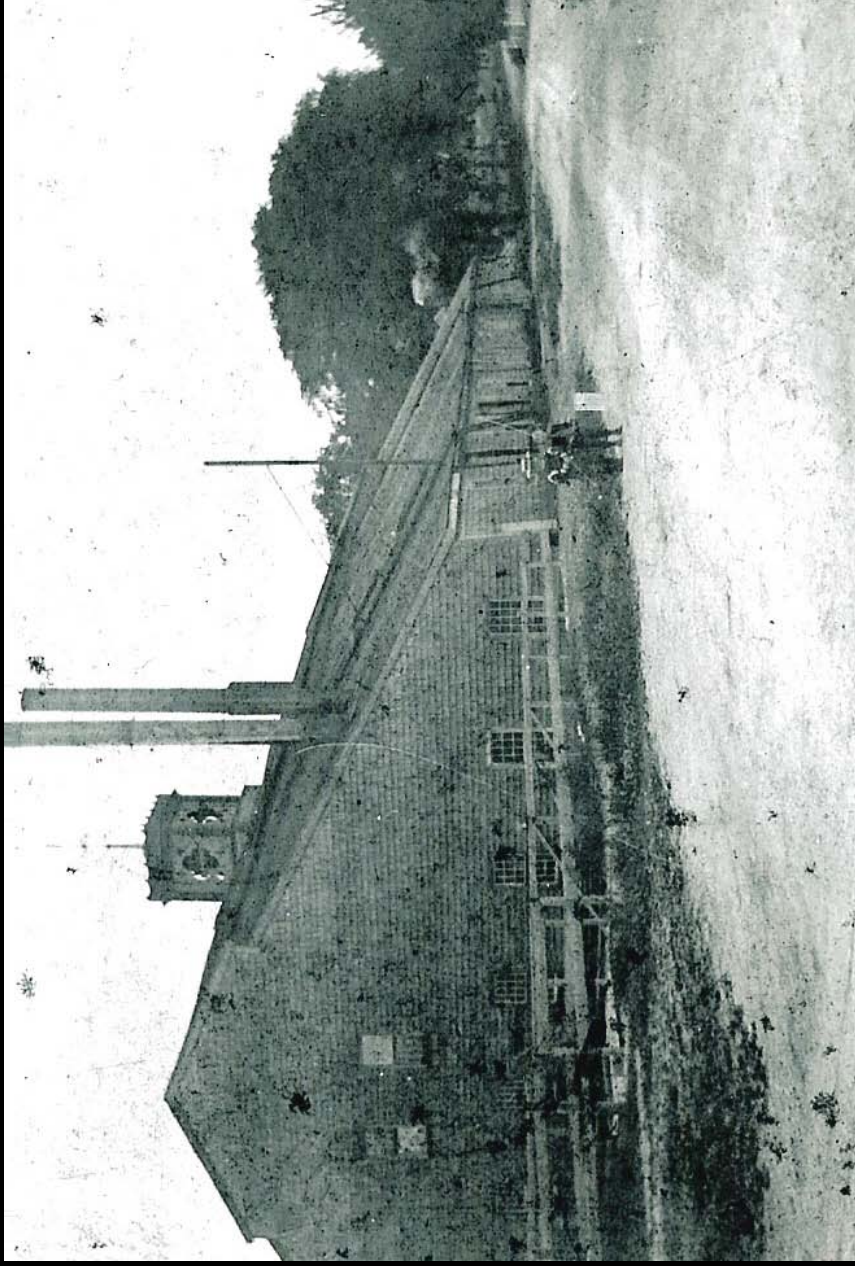
TREMONT NAIL FACTORY BUILDING

Conditions Assessment Feasibility Study
Part 4: Cyclical Maintenance Plan

	Building System	Location	Maintenance		Capital Budgeting			Projected annual cost Sum of cash reserve and maintenance	Comments
			Cost	Frequency in years	Life span in years	Replacement Year	Replacement Cost	Cash Reserve	
Appliances	Sprinkler system								
			100	0.5	25	2034	134575	5,383	Assumes full system replacement - valves and heads and piping.
Exterior									
Roofing	Asphalt Shingle		250	0.5	35	2044	161490	4,614	
	Wood Shingle*		250	0.5	35	2044	322980	9,228	
	Clean gutters/replace gutters (aluminum)		250	0.5	35	2044	3500	100	
Walls	Masonry Repointing - Spot repointing/Total repointing		2500	5.0	50	2059	135000	2,700	
	Wood shingle siding		1000	5.0	25	2034	88000	3,520	
Chimneys	Repair flashing		500	2.0					
	Replace wash				25	2034	2500	100	
	Repoint brick				40	2049	27000	675	
Wood Trim	Repair and paint		2000	7.0	30	2039	28000	933	
Swing Doors	Paint and adjust hardware/Restore Exterior Doors (15)		3000	5.0	25	2034	22500	900	

Appendices

- Primary Source Materials
- National Register District Nomination
- Coastal Engineering Structural Report
- Vlachos Mechanical Engineering Report
- Coastal Engineering Civil Report
- Adaptive Reuse Resources
- Menders, Torrey & Spencer Presentations



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Developmental History

- Parallel development on Wankinco & Wewaeantit Rivers
- Connections among iron masters & families
- TNCo role in regional/national iron manufacturing & international market
- Remarkable adaptation & longevity of TNCo
- Significant survival of industrial/archeological artifacts



Discussion

June 4, 2009

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