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TECHNICAL REPORT

INTENSIVE (LOCATIONAL) ARCHAEOLOGICAL SURVEY AND SITE EXAMINATION
North East Fitzwilliam Road Bridge (R-12-004) Project (604175)
MassDOT Assignment #03
Contract No. 62358 Statewide Open Services

Royalston, Massachusetts

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MANAGEMENT ABSTRACT

The Massachusetts Department of Transportation, Highway Division (MassDOT) is proposing the replacement of Bridge R-12-004 (Royalston Bridge) that carries North East Fitzwilliam Road over Lawrence Brook in the Town of Royalston. A review of historic maps and general histories identify the project area as the location of a saw and turning mill during the mid-nineteenth century. An intensive (locational)/site examination survey was conducted to determine if any unknown archaeological resources are present within the area of proposed impact and to document the former mill site. Field investigations for the intensive survey included walkover, clearing vegetation, and excavation of forty 50 x 50 centimeter (cm) shovel test pits within the four quadrants of the project area. The site examination entailed the recordation of the mill. Two hundred and ten points were collected recording visible structural features and elevations. Excavation Unit-1, a 1 x 2 meter trench was excavated to examine a mill feature (Feature 1) located in close proximity to the waterwheel/turbine pit and tailrace. Feature 1 consisted of a cobble floor with a foundation of dry-laid quarried stones and large stone slabs delimiting the corners and perimeter. Subsurface testing yielded a total of 1,055 post-contact artifacts with the highest density from the excavation unit and test pits placed within and around the mill complex. A number of turning knives in the assemblage suggest the shaping of raw materials for finished products.

Based on research and the results of field investigations, the mill complex, designated the Newton-Davis Mill Site, is a significant archaeological resource and is potentially eligible for listing in the National Register of Historic Places, at the local level, under Criterion A, and possibly Criterion C. The mill contributes to our understanding of the broad trends of the sawmilling industry in northern Worcester County and its association with the furniture making industry in nearby Gardner. The Newton-Davis Mill site is associated with a Greek Revival house located to the west, contributing to the overall mid-nineteenth century rural industrial setting.

With the completion of the current archaeological investigations, the information potential of the Newton-Davis Mill Site within the area of potential impact has been exhausted. No new meaningful interpretive data can be expected through additional subsurface investigations. PAL recommends that the visible remnants of the mill complex be avoided and protected during construction. In the event that deep excavation is undertaken in the southwest corner of the dam, monitoring is recommended to insure that elements of the site that have been identified are avoided and also in the event that remains of the headrace are exposed.

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CHAPTER ONE

INTRODUCTION

PAL completed an intensive (locational) archaeological survey and modified site examination in support of the proposed replacement of Bridge R-12-004 (Royalston Bridge) that carries North East Fitzwilliam Road over Lawrence Brook in the Town of Royalston, Massachusetts (Figure 1-1and 1-2). This report details the objectives, methodologies, and results of the surveys, and provides recommendations based on these results.

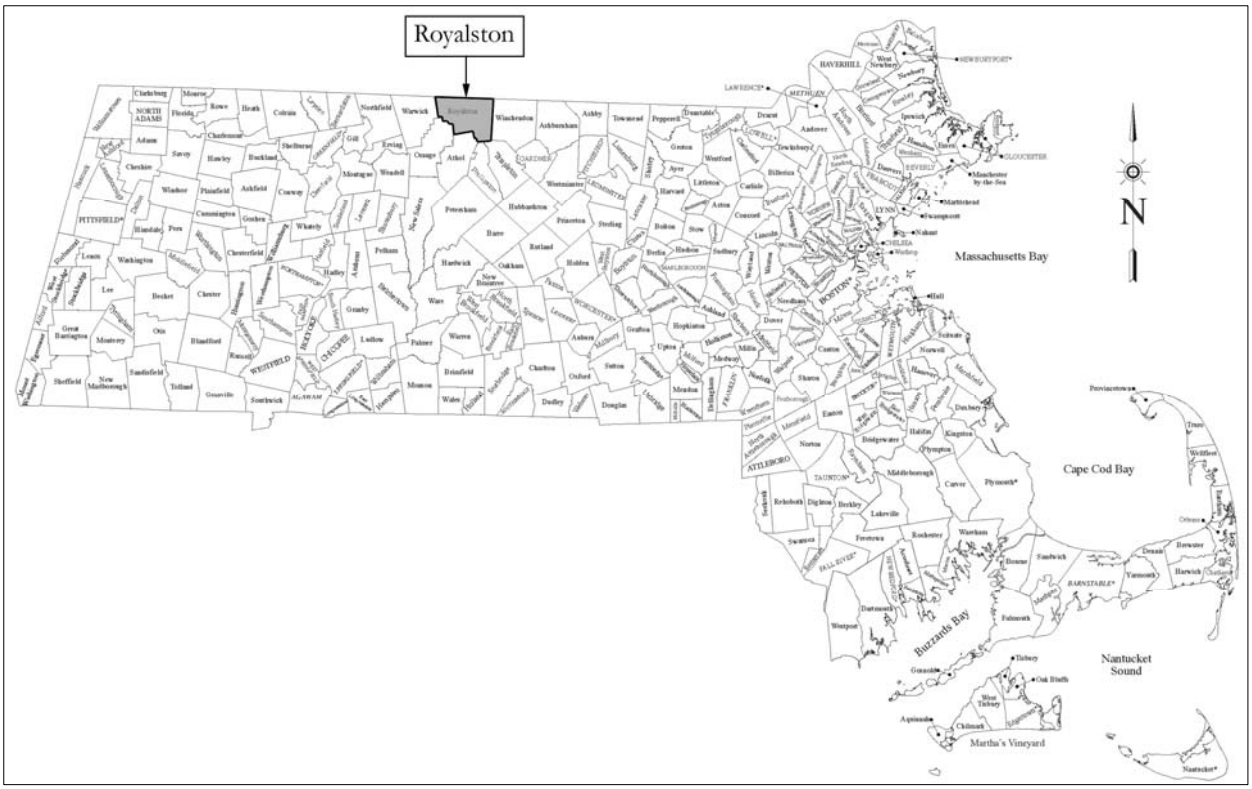


Figure 1-1. Map of Massachusetts showing the location of Royalston.

Project Description

The Royalston Bridge was constructed in 1936 over Lawrence Brook. The existing bridge is a single-span steel stringer structure supported on earlier mortared fieldstone abutments with reinforced concrete bridge seats. The bridge is a deteriorated example of a common structural type which possesses no unusual engineering or architectural characteristics.

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace the existing bridge on the same alignment with a slightly wider single-span pre-cast reinforced concrete arch structure supported on reinforced concrete spread footings (Figure 1-3). In addition to the bridge work, the project will also include reconstruction (with some minor widening) of the roadway approaches extending approximately 250 feet from each end of the bridge; replacement of the existing guardrails; construction of a drainage swale north of the stream and east of the roadway; construction of a small

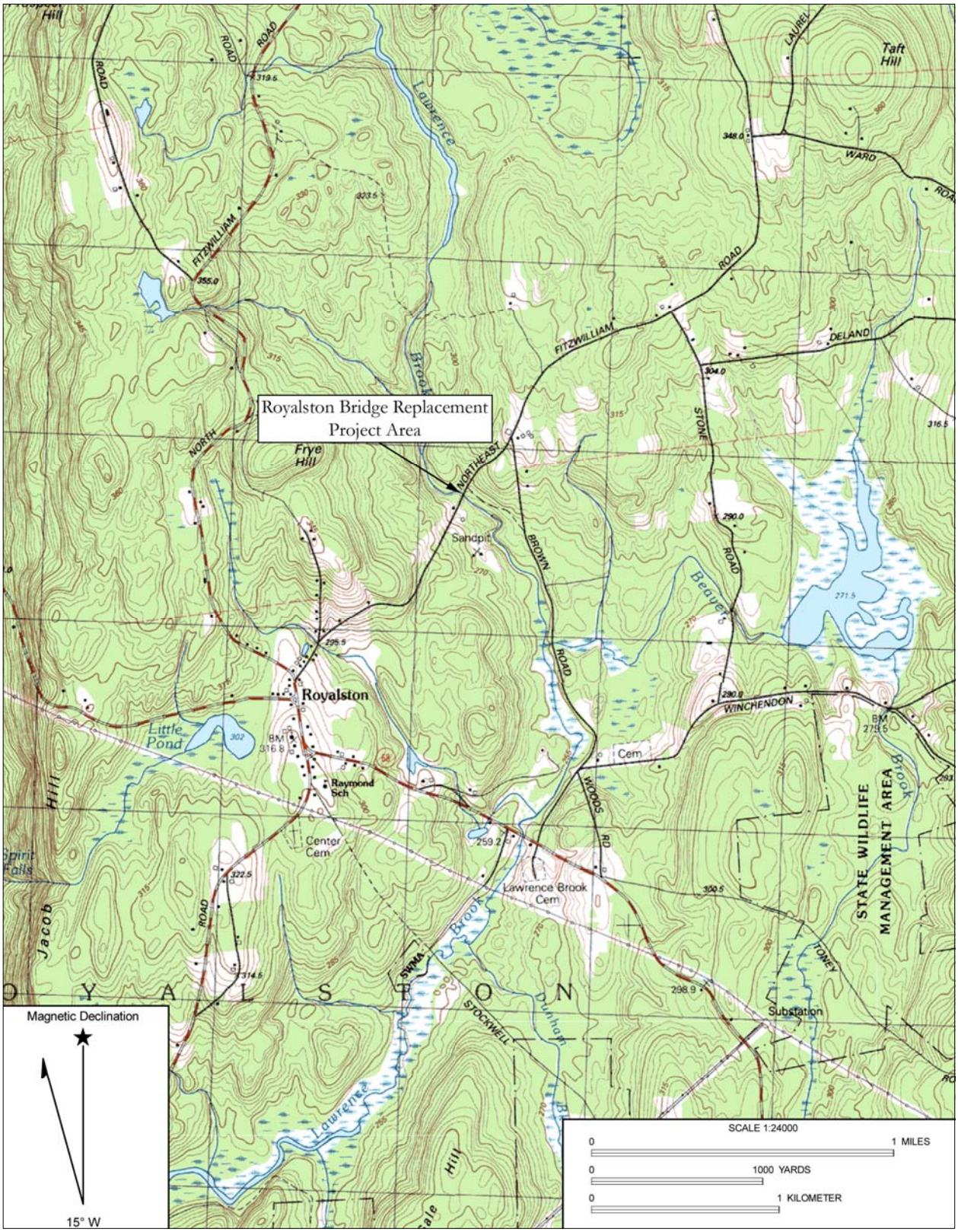


Figure 1-2. Royalston Bridge Replacement project area on the Winchendon USGS topographic quadrangle, 7.5 minute series.

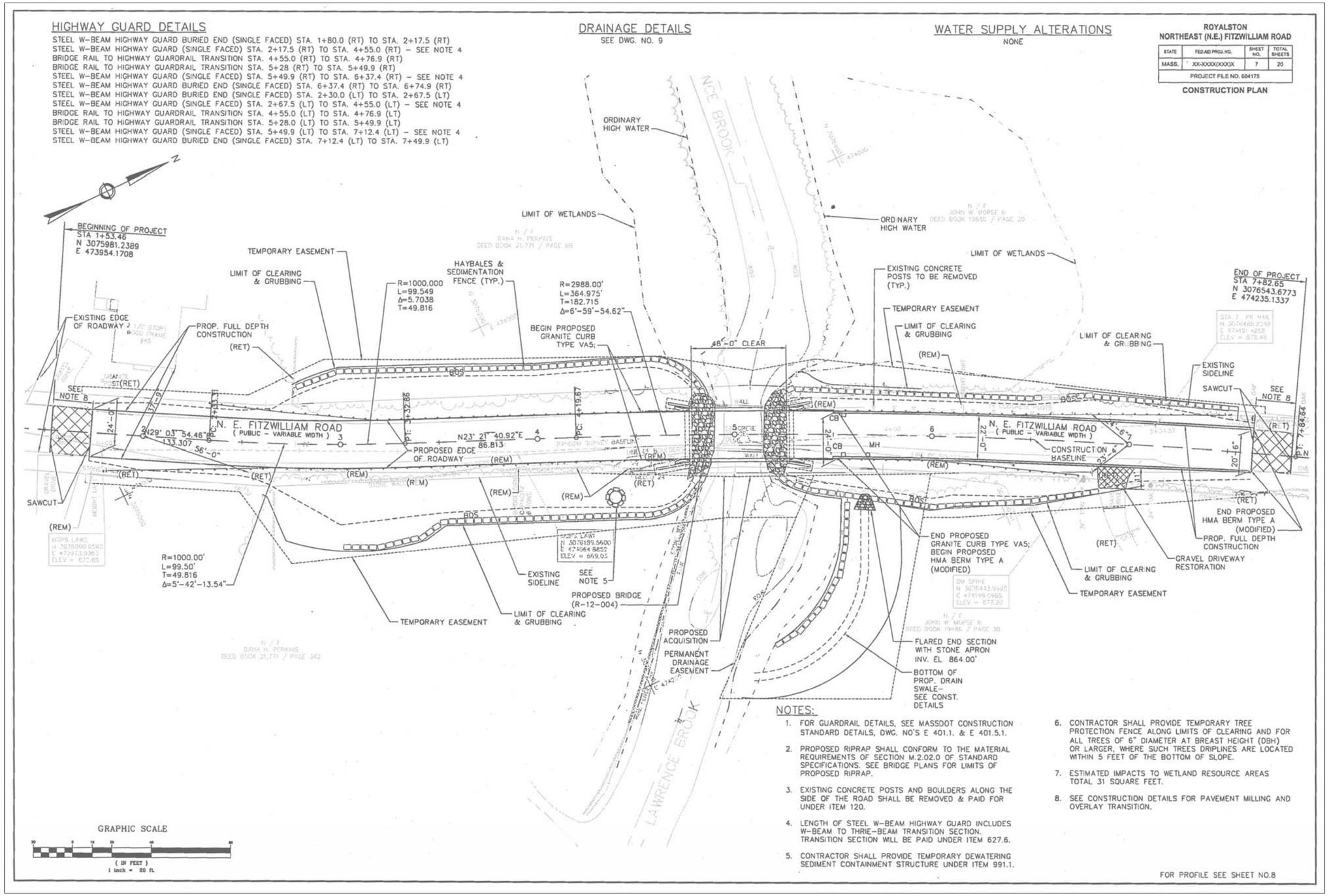


Figure 1-3. General plan for the replacement of the Royalston Bridge.

wetland replacement area south of the stream and east of the roadway; installation of rip-rap around the new abutments for scour protection; slope work and landscaping along the roadway embankments; and placement of hay bales and silt fencing at the base of the embankments for erosion control and wetland protection.

Project Scope and Authority

A site visit by MassDOT Cultural Resources Unit (CRU) staff disclosed the area surrounding the bridge to be a mixture of open field, wetland and woodland. The site visit also revealed a number of visible mill-related structural remains and features within and immediately adjacent to the proposed areas of impact. These include dry-laid stone walls associated with a mill building at the southeasterly end of the project area, a mill dam beneath the roadway approaches, an open tail race/ditch running easterly from the southerly roadway approach and the edge of a former mill pond (now wooded wetland) running westerly from the southerly roadway approach (Figure 1-4).

Preliminary research indicated that these remains are associated with a mid-nineteenth to early-twentieth century saw/grist mill that once stood at this location. Based on this information, MassDOT concluded that a combined intensive (locational) archaeological/modified site examination survey was warranted to investigate the general project area for evidence of pre-contact and post-contact activity associated with Lawrence Brook, to locate additional features that may be associated with the mill complex, and to further assess the integrity and nature of the visible mill features/remains.

The survey was conducted under State Archaeologist's Permit #3317 issued on May 24, 2012, by the Massachusetts Historical Commission (MHC). The survey was conducted utilizing the methodology outlined in the technical proposal for this project, and included background research, informant interviews, field investigations and laboratory analysis. The results of the survey will be used to facilitate consultation regarding the potential impacts of the project in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (36 CFR 800), MGL c. 9, ss 26-27C (950 CMR 70-71), and MEPA (301 CMR 11).

Project Personnel

PAL personnel involved in the project include A. Peter Mair, II (project manager and co-principal investigator) and Suzanne Cherau (co-principal investigator). Field investigations were undertaken by Erin Timms (project archaeologist) and Yvonne Benney-Basque, John Campbell, Jenifer Elam, and Kirk Van Dyke (archaeologists). John Daly, Industrial Architectural Historian, conducted a field review to assist with identification of visible mill features. Lab processing, analysis, and generation of the artifact catalog were carried out under the direction of Heather Olsen (laboratory supervisor).

Disposition of Project Materials

All supporting project documentation and information (field forms, photographs, maps, etc.) and cultural materials are currently on file at PAL, 26 Main Street, Pawtucket, Rhode Island. PAL serves as a temporary curation facility until such time as a permanent state repository is designated.

a. End of stone-lined portion of the tail race looking east toward Lawrence Brook.

b. Downstream side of dam depicting stone facade, view looking northeast.

c. Stonewall/foundation/wheel pit of mill looking south.

Figure 1-4. Representative photos of project area showing stone walls, dam, and mill tailrace (source: MassDOT 2012).

CHAPTER TWO

RESEARCH DESIGN AND FIELDWORK METHODOLOGIES

The archaeological investigations conducted within the Royalston Bridge project area were designed to collect specific types of information to assist in the identification, evaluation, and management of cultural resources present within the proposed impact areas. The following chapter presents the research and field methodologies developed for the intensive (locational) archaeological survey and the modified site examination.

Study Objectives

The goal of the intensive (locational) archaeological survey is to locate and identify any potentially significant cultural resources that could be threatened by project activities. To accomplish this objective, three research strategies were used:

- archival research, including a review of literature and maps;
- field investigations, consisting of a "walkover" visual reconnaissance survey and subsurface testing; and
- laboratory processing and analyses of recovered cultural materials.

The research and walkover survey provided the information needed to develop environmental and historic contexts for the project area, as well as a predictive model for archaeological sensitivity. Archaeological sensitivity is defined as the likelihood for below ground cultural resources to be present and is based on various categories of information:

- locational, functional, and temporal characteristics of previously identified cultural resources in the project area or vicinity; and
- local and regional environmental data reviewed in conjunction with existing project area conditions documented during the walkover survey, and archival research about the project area's land use history.

Subsurface archaeological testing was conducted in areas determined during the sensitivity assessment to have high or moderate potential for containing archaeological deposits. Cultural materials recovered during the survey were processed in the laboratory and analyzed to interpret the nature of past human activities they represent. The artifact analyses were correlated with other field survey data and the resulting information was interpreted within the environmental and historic contexts developed for the project area. The result was the identification of archaeological resources that may be significant and eligible for listing in the National Register of Historic Places (National Register), the official federal list of historic properties that have been studied and found worthy of preservation.

The goal of a site examination (36 CFR 800.4(c)) was to evaluate the eligibility of a site for listing in the National Register. The site examination investigation was designed to collect information about a site's

boundaries, physical integrity, density, complexity, and age. Research questions were formulated to address the site's role in local and regional land use and settlement patterns and its importance within larger historic contexts. Sufficient information should be obtained from a site examination to make a determination of significance and to develop a mitigation plan, if necessary.

Evaluating Significance and Historic Contexts

Different phases of archaeological investigation (intensive [locational] survey, site examination, and data recovery) reflect preservation planning standards for the identification, evaluation, registration, and treatment of archaeological resources (National Park Service [NPS] 1983). An essential component of this planning structure is the identification of archaeological properties that are eligible for inclusion in the National Register. Archaeological properties can be a district, site, building, structure, or object, but are most often sites and districts (Little et al. 2000).

An archaeological property may be pre-contact, post-contact, or contain components from both periods. Pre-contact (or what is often termed "prehistoric") archaeology focuses on the remains of indigenous Native American societies, as they existed before substantial contact with Europeans and resulting written records (Little et al. 2000). PAL, following NPS guidelines, employs the term "pre-contact" instead of "prehistoric" unless directly quoting materials that use the term "prehistoric." The date of contact varies across New England and the country as a whole, with no single year marking the transition from pre-contact to post-contact. Post-contact (or what is often termed "historical") archaeology is the archaeology of sites and structures dating since the time of significant contact between Native Americans and Europeans. Documentary records as well as oral traditions can be used to better understand these properties and their inhabitants (Little et al. 2000). PAL, once again following NPS guidelines, elects to use the term "post-contact" instead of "historical" when referring to archaeology of this period unless directly quoting materials that use the term "historical."

The NPS has established four criteria for listing significant properties in the National Register (36 CFR 60). The criteria are broadly defined to include the wide range of properties that are significant in American history, architecture, archaeology, engineering, and culture. The quality of significance may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria allow for the listing of properties:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important to prehistory or history.

Archaeological properties can be determined eligible for listing in the National Register under all four criteria (Little et al. 2000). Significance under any of these criteria is determined by the kind of data contained in the property, the relative importance of research topics that could be addressed by the data, whether these data are unique or redundant, and the current state of knowledge relating to the research topic(s). A defensible argument must establish that a property "has important legitimate associations and/or information value based upon existing knowledge and interpretations that have been made, evaluated, and accepted" (McManamon 1990:15).

The criteria are applied in relation to the historic contexts of the resources. A historic context is defined as follows:

> A historic context is a body of thematically, geographically, and temporally linked information. For an archaeological property, the historic context is the analytical framework within which the property's importance can be understood and to which an archaeological study is likely to contribute important information (Little et al. 2000).

The formulation of historic contexts is a logical first step in the design of an archaeological investigation and is crucial to the evaluation of archaeological properties in the absence of a comprehensive survey of a region (NPS 1983:9). Historic contexts provide an organizational framework that groups information about related historic properties based on a theme, geographic limits, and chronological periods. A historic context should identify gaps in data and knowledge to help determine what significant information may be obtained from the resource. Each historic context is related to the developmental history of an area, region, or theme (e.g., agriculture, transportation, waterpower), and identifies the significant patterns of which a particular resource may be an element. Only those contexts important to understanding and justifying the significance of the property must be discussed.

Historic contexts are developed by:

- identifying the concept, time period, and geographic limits for the context;
- collecting and assessing existing information about these time periods;
- identifying locational patterns and current conditions of the associated property types;
- synthesizing the information in a written narrative; and
- identifying information needs.

"Property types" are groupings of individual sites or properties based on common physical and associative characteristics. They serve to link the concepts presented in the historic contexts with properties illustrating those ideas (NPS 1983; 48 FR 44719).

The following research contexts were developed to organize the data relating to the archaeological resources identified within the project area:

- Pre-contact Native American land use and settlement in the Millers River Drainage Basin, circa (ca.) 12,500 to 300 years before present (B.P.); and
- Post-contact period land use and settlement patterns in Royalston, ca. A.D. 1650 to present.

Summary narratives of the environmental and historical contexts are provided in Chapters 3 and 4 of this report. The potential research value of the known and expected archaeological resources within the project area were evaluated in terms of these historic contexts. The evaluation and related management recommendations are presented in the concluding chapters of this report.

Archival Research

The development of a historic context and a predictive model of expected property types and densities within the project area began with archival research, consisting of an examination of primary and

secondary documentary sources. These sources include written and cartographic documents relating both to past and present environmental conditions as well as documented/recorded sites in the general project area. The information contained in archival sources formed the basis of the predictive models developed for the project area, and was an integral part of the archaeological survey.

The following sources were reviewed as part of the documentary research for the archaeological study:

State Site Files, Artifact Collection Reports, and Town Reconnaissance Surveys

The inventory of cultural resources housed at the MHC was reviewed to locate any known pre-contact Native American or post-contact period sites in or close to the project area. MHC inventories also include cultural resources listed or eligible for listing in the National Register. The MHC has also conducted regional and town-specific reconnaissance survey reports for planning purposes and has compiled narratives for central Massachusetts (MHC 1985) and Royalston (MHC 1984b).

Cultural Resource Management and Archaeological Reports

The review of the MHC database reveals a limited number of studies conducted in Royalston. The majority of these surveys have focused on Tully Lake (Atwood 2005; Cherau and Boire 1995, 2000) and the Birch Hill Dam and Reservoir (Atwood 2001; King et al. 1991). One other survey was conducted for the modification of Route 32 Highway (McArdle and Whitney 1987).

Histories and Maps

Primary and secondary histories, and historic maps and atlases were examined to assess changes in land use, to locate any documented structures, and to trace the development of transportation networks, an important variable in the location of post-contact period archaeological sites. Town, county, state, and regional histories (Bartlett 1927; Bullock 1865; Caswell 1917; Crane 1924; Horr 1879; Hurd 1889) and historical maps and atlases (Beers 1870; Blake 1831; Richards 1898; Royalston Historical Society 1940; Town 1794; Walling 1857) were consulted to locate possible historical sites within and close to the project area.

Environmental Studies

Bedrock and surficial geological studies, such as the *Bedrock Geologic Map of Massachusetts* (Zen et. al 1983), provide information about the region's physical structure and geological resources. The United States Department of Agriculture (USDA) Soil Conservation Service soil survey for Worcester County, Northern Part (USDA 1985) and the USDA on-line soil survey (USDA 2012) contained information about soil types and surficial deposits within the project area and the general categories of flora and fauna that these soil types support. Supplemental data about localized topography (Fenneman 1938) and drainage (Bickford and Dymon 1990) were also consulted.

Informant Interviews

The replacement of the Royalston Bridge is considered an undertaking under Section 106 of the National Historic Preservation Act of 1966, as amended. MassDOT requested that PAL coordinate with interested Native American groups. In this regard, PAL sent project notification letters dated May 3, 2012, to the Massachusetts Commission on Indian Affairs, the Tribal Historic Preservation Offices of the Wampanoag Tribe of Gay Head (Aquinnah), the Mashpee Wampanoag, and the Narragansett, as well as the Nipmuc Nation Tribal Council (Hassanamesit Band). PAL also notified these offices of the fieldwork schedule.

The Mashpee Wampanoag office responded, indicating that they would not be participating in the field efforts. No other responses were received.

PAL also coordinated with the Royalston Historic District Commission (RHDC) and other local residents. A letter dated May 18, 2012 from the RHDC requested notification of the archaeological survey. Peter Kraniak, Chair of the RHDC visited the site on June 8 and 15, 2012. PAL staff interviewed Keith and Wayne Newton, descendants of the former mill owners on June 5 and 14, 2012. PAL also interviewed the current property owner, Mr. Perkins, who shared historical images and his knowledge of the property, including information regarding the waterwheel/steam turbine pit and the apparatus removed from the site prior to the archaeological survey.

Walkover Survey

A walkover survey of the project area was conducted to document and assess present environmental conditions. The current physical condition of the project area is largely defined by the absence of or degree of natural or human disturbances to the landscape. Typically encountered disturbances within a given project area may include those resulting from agricultural plowing, gravel or soil mining, or previous construction and site preparation activities. Past experience has shown that such disturbances can reduce the probability for encountering contextually intact archaeological sites. Plowing, which can move artifacts from their primary vertical and horizontal contexts, is the most common type of disturbance in New England. The consequences of plowing, however, are not as severe as the effects of soil or gravel mining, which can remove archaeological deposits in their entirety.

Another purpose of a walkover survey is to document surface indications of archaeological sites. While pre-contact sites in New England are most often found belowground, artifact scatters are sometimes exposed on the surface through cultural agents such as pedestrian and vehicular traffic, and natural processes such as erosion. Post-contact archaeological site types that might be visible include stone foundations, stone walls, and trash deposits. If the remains of a built resource such as a farmstead are present within a project area, it is likely that a filled in cellar hole and associated landscape features such as stone walls, overgrown orchards and fields, and ornamental plantings may be visible on or above the ground's surface.

Archaeological Sensitivity Assessment

Pre-Contact Period Archaeological Sensitivity

Archaeologists have documented nearly 12,000 years of pre-contact Native American occupation in the region, and oral traditions of some contemporary tribes tell of a 50,000-year cultural legacy. Currently available archaeological data indicate that prior to 7,000 years ago, peoples focused primarily on inland-based resources, hunting and collecting along and across the Northeast's waterways. After 7,000 years ago, settlement became more concentrated within the region's major river drainages. By 3,000 years ago, concurrent with a focus on coastal and riverine settlement, large populations were living in nucleated settlements and developing complex social ties, with language, kinship, ideology, and trade linking peoples across the Northeast. During the centuries prior to European contact, these groups began to coalesce into the peoples known as Pocumtuck, Nipmuck, Pennacook, Abenaki, Massachusett, Wampanoag, Pokanoket, Mohegan, Pequot, and Narragansett. The chronology of the pre-contact period is presented in detail in Chapter 4.

Assessing the pre-contact archaeological sensitivity of any given project area depends on a consideration of past and present geographical and ecological characteristics, known site location databases, and knowledge of distinctive temporal and cultural patterns. The choices that pre-contact Native Americans

made about where they settled, how they organized themselves, and their technologies were all results of the dynamic relationship between culture and environment. Predictive modeling for larger-scale site location in southern New England has its roots in academic research including Dincauze's (1974) study of reported sites in the Boston Basin and Mulholland's (1984) dissertation research about regional patterns of change in pre-contact southern New England. Peter Thorbahn applied ecological modeling and quantitative spatial analysis, synthesizing data from several hundred sites in southeastern New England (Thorbahn et al. 1980), demonstrating that the highest concentration of pre-contact sites occurred within 300 meters (m) of low-ranking streams and large wetlands. The distribution of sites found along a 14-mile I-495 highway corridor in the same area reinforced the strong correlations between proximity to water and site locations (Thorbahn 1982). These and other large-scale projects provided data toward developing models of Native American locational and temporal land use (MHC 1982a, 1982b, 1984a, 1985; RIHPC 1982) that became the foundation for site predictive modeling employed during CRM surveys through the next two decades.

Today, assessment of archaeological sensitivity within a given project area, and the sampling strategy applied to it, continues to take existing physiographic conditions into consideration, but at multiple scales, from bedrock geology, to river drainages, to microenvironmental characteristics, to establish the diversity of possible resources through time, the land use patterns of particular cultures, and the degree to which the landscape has been altered since being occupied. Increasingly, social and cultural perspectives, as reflected in both the archaeological and historical records (Johnson 1999), and as expressed by representatives of existing Native American communities (Kerber 2006), are being taken into consideration when assessing archaeological sensitivity. Archaeological sampling strategies have also been evaluated and refined through applications of quantitative analyses (Kintigh 1992).

Geologic data provide information about lithic resources and current and past environmental settings and climates. Bedrock geology helps to identify where pre-contact Native Americans obtained raw materials for stone tools and gives indications of how far from their origin lithic materials may have been transported or traded. The variety and amount of available natural resources are dependent on soil composition and drainage, which also play a significant role in determining wildlife habitats, and forest and plant communities.

Geomorphology assists in reconstructing the paleoenvironment of an area and is particularly useful for early Holocene (PaleoIndian and Early Archaic period) sites in areas that are different physically from 10,000 years ago (Simon 1991). Recent landscape changes such as drainage impoundments for highways and railroads, the creation of artificial wetlands to replace wetlands affected by construction, or wetlands drained for agricultural use, can make it difficult to assess an area's original configuration and current archaeological potential (Hasenstab 1991:57).

Beyond predicting where sites are located, archaeologists attempt to associate cultural and temporal groups with changes in the environmental settings of sites. Changes in the way pre-contact Native Americans used the landscape can be investigated through formal multivariates such as site location, intensity of land use, and specificity of land use (Nicholas 1991:76). However, distinguishing the difference between repeated short-term, roughly contemporaneous occupations and long-term settlements is difficult, and can make interpreting land use patterns and their evolution problematic (Nicholas 1991:86).

Contact Period Archaeological Sensitivity

The contact period in New England roughly dates from AD 1500 to 1650, and predates most of the permanent Euro-American settlements in the region. This period encompasses a time when Native and non-Native groups interacted with one another through trade, exploration of the coastal region, and

sometimes conflict. While contact period sites are usually associated with Native American activity during this period, they can also include sites utilized by Native and non-Native groups such as trading posts. Native settlement patterns during the contact period are generally thought to follow Late Woodland traditions, but with an increased tendency toward the fortification of village settlements. Larger village settlements are frequently expected along coastal and riverine settings, often at confluences. Inland villages are known to occur near swamp systems, which were exploited both as resource areas and as places of refuge in the event of attack. Such sites would likely contain material remnants reflecting the dynamics of daily life, trade, and a preparedness for defense.

The identification of contact period deposits is most frequently tied to the types of artifacts located within archaeological sites. Unfortunately, the majority of the archaeological data for this period in southern New England comes from the analysis of grave goods within identified Native American burial grounds, rather than from habitation sites and/or activity areas (Gibson 1980; Robinson et al. 1985; Simmons 1970). The available data suggest that sites dating to this period often contain traditionally pre-contact features and artifacts (e.g., storage pits, chipped-stone tools) as well as non-Native trade goods and objects (e.g., glass beads, iron kettles and hoes) (Bragdon 1996). The earliest contact period sites are often located at or near the coast and estuarine margin, since European visits to New England occurred via ship. Non-Native artifacts passed from the coastal region to the interior through trade and/or seasonal travel.

Post-Contact Period Archaeological Sensitivity

The landscape of a project area is used to predict the types of post-contact period archaeological sites likely to be present. Major locational attributes differ according to site type. Domestic and agrarian sites (houses and farms) are characteristically located near water sources, arable lands, and transportation networks. Industrial sites (e.g., mills, tanneries, forges, and blacksmith shops) established before the late nineteenth century are typically located close to waterpower sources and transportation networks. Commercial, public, and institutional sites (e.g., stores, taverns, inns, schools, and churches) are usually situated near settlement concentrations with access to local and regional road systems (Ritchie et al. 1988).

Written and cartographic documents aid in determining post-contact period archaeological sensitivity. Historical maps are particularly useful for locating sites in a given area, determining a period of occupation, establishing the names of past owners, and providing indications of past use(s) of the property. Town histories often provide information, including previous functions, ownership, local socioeconomic conditions, and political development, that is used in the development of a historic context and to assess the relative significance of a post-contact period site.

The written historic record, however, tends to be biased toward the representation of Euro-American cultural practices and resources, particularly those of prominent individuals and families. Archival materials generally are less sensitive to the depiction of cultural resources and activities associated with socioeconomically or politically “marginalized” communities (McGuire and Paynter 1991; Scott 1994). These communities may include, but are not limited to, Native Americans, African-Americans, and “middling” farming or working-class Euro-Americans.

Several archaeological studies conducted throughout New England have demonstrated the methodological pitfalls of relying exclusively on documentary or cartographic materials as a means to identify potential site locations associated with these types of communities. A large-scale archaeological study by King (1988) showed that in rural areas only 63 percent of the sites discovered were identifiable through documentary research. This suggests that approximately one-third of New England’s rural Euro-American archaeological sites may not appear on historical maps or in town and regional histories.

More recent archaeological and ethnohistoric studies in the region have focused on the identification of other historically "invisible" communities, notably post-contact Native American communities. Several townwide surveys in southeastern Massachusetts have compiled archaeological and historical data about eighteenth- and nineteenth-century Native and African-American communities that are poorly represented or are altogether absent in written town histories (Herbster and Cox 2002; Herbster and Heitert 2004). In central Massachusetts, active and influential Native Americans have been identified through archival research despite the recorded "disappearance" of this group in the early eighteenth century (Doughton 1997, 1999). The cultural continuity of groups such as the Aquinnah Wampanoag is more thoroughly documented in archival sources, but until recently archaeologists focused their attention on pre-contact archaeological deposits. Current studies include predictive models for distinctly Native American post-contact sites, as well as interpretations of eighteenth- through twentieth-century archaeological sites (Cherau 2001; Herbster and Cherau 2002).

Other archaeological investigations have focused on worker housing and landscape organization within mixed-cultural mining communities in northern New England (Cherau et al. 2003); the social and spatial organization of a mixed racial community in western Connecticut (Feder 1994); and material culture and architectural patterns among nineteenth-century mixed African-American and Native American households in central Massachusetts (Baron et al. 1996).

Information about post-contact period land use within a project area can also be collected through written and oral histories passed through family members and descendant communities. These types of information sources can often fill in gaps in the documentary record and provide details that are not available through more conventional archival sources. While informants and other oral sources are subject to contradictory interpretations just like the documentary record, this type of information can also provide important data for the identification and interpretation of archaeological sites. However, the sole use of and reliance on the written and oral historical records during archival research can lead to an underestimation of the full range of post-contact period sites in any given region. Therefore, walkover surveys and subsurface testing, in conjunction with the critical evaluation of available documentary and cartographic resources, are required to locate and identify underdocumented historic sites.

Archaeological Sensitivity Ranking

The project area was ranked according to the potential for the presence of archaeological resources based on information collected during the archival research and walkover survey. Table 2-1 is a summary of the different factors used to develop the archaeological rankings.

Subsurface Testing

The goal of intensive (locational) archaeological survey of the Royalston Bridge Replacement project area was to determine the presence or absence of potentially significant archaeological resources that could be affected by future development. Subsurface testing was conducted in project impact areas with moderate and high archaeological sensitivity to locate and identify any archaeological resources. Forty 50-x-50-centimeter (cm) test pits were excavated along the project corridor. These test pits were excavated within linear test pit transects, judgmentally placed test pits, and test pit arrays within the four quadrants of the project area surrounding the bridge.

The goal of the site examination (36 CFR 800.4(c)) was to determine a site's significance and eligibility to the National Register. Field investigations entailed two phases: the recordation of the structural mill remains with a Leica TCR405 Total Station, and excavation of a mill related feature identified during the intensive (locational) archaeological survey.

Table 2-1 Archaeological Sensitivity Rankings.

Presence of Sites		Proximity to Favorable Cultural/Environmental Characteristics			Degree of Disturbance			Sensitivity Ranking
Known	Unknown	< 150 m	≥ 150 ≤ 500 m	> 500 m	None/Minimal	Moderate	Extensive	
•		•			•			High
•		•				•		High
•		•					•	Low
•			•		•			High
•			•			•		High
•			•				•	Low
•				•	•			High
•				•		•		High
•				•			•	Low
	•	•			•			High
	•	•				•		Moderate
	•	•					•	Low
	•		•		•			Moderate
	•		•			•		Moderate
	•		•				•	Low
	•			•	•			Moderate
	•			•		•		Low
	•			•			•	Low

All subsurface investigations were excavated by shovel in arbitrary 10-cm levels to sterile subsoil. Excavated soil was hand screened through ¼-inch hardware cloth, and all cultural materials remaining in the screen were bagged and tagged by level within each unit. The count and type of all recovered cultural material were noted. Soil profiles, including depths of soil horizons, colors, and textures, were recorded for each test pit on standard PAL test pit profile forms. All test pits were filled and the ground surface was restored to its original contour following excavation. Digital color images were taken of the general project area and testing locations.

Laboratory Processing and Analyses

Processing

All cultural materials recovered from the project area during the archaeological investigations were organized by site and provenience and recorded and logged in on a daily basis. Cultural materials were

sorted by type and either dry brushed or cleaned with tap water depending on the material or artifact type and condition.

Cataloging and Analyses

All cultural materials were cataloged using a customized computer program designed in Microsoft Access 2000. The program is a relational database, which provides flexibility that is needed when cataloging archaeological collections that often contain disparate cultural materials such as stone, ceramics, and/or glass. Artifacts with similar morphological attributes are grouped into lots, which allows for faster and more efficient cataloging. The artifacts are stored in 2-millimeter thick polyethylene resealable bags with acid-free tags containing provenience identification information. The artifacts are placed in acid-free boxes that are labeled and stored in PAL's curatorial facility in accordance with current NPS standards.

Culturally modified lithic materials, such as stone tools and chipping debris, were identified in terms of material, size (0–1 cm, 1–3 cm, 3–5 cm, etc.), and color. A lithic-type collection, maintained at PAL and containing materials from various source areas in New England and adjacent regions such as New York and Pennsylvania, was utilized in the identification of all lithic materials. Chipping debris was classified as either flakes or shatter. Pieces of debitage showing evidence of a striking platform, bulbs of percussion, or identifiable dorsal or ventral surfaces were called flakes. Debitage without these attributes, and exhibiting angular or blocky forms, were classified as shatter. Lithic debris was examined for edges that had been modified by use wear or intentional retouch.

Non-lithic artifacts were cataloged by material (e.g., ceramic, glass, coal, synthetic) and functional (e.g., plate, bowl, bottle, building material) categories. Artifacts having known dates of manufacture such as ceramics were also identified in terms of type (e.g., redware, pearlware, whiteware) when possible. In addition, ceramic sherds and bottle glass were examined for distinguishing attributes that provide more precise date ranges of manufacture and use. These included maker's marks, decorative patterns, and embossed or raised lettering. Tentative dating of post-contact archaeological resources was performed using ceramic indices according to Hume (1969), Miller (1990, 1991), Miller and Hurry (1983), and South (1977). An analysis of the different nail and bottle types was used to refine the tentative date ranges of historic occupation generated by the ceramic assemblages.

The analyses of the cultural materials recovered during the archaeological investigations also included mapping the density and horizontal and vertical distribution of these materials within the project area. Given the small sample of cultural material recovered, analysis was limited to these basic tasks.

Curation

Following laboratory processing and cataloging activities, all recovered cultural materials were placed in acid-free Hollinger boxes with box content lists and labels printed on acid-free paper. These boxes are stored at PAL in accordance with state and federal curation guidelines until such time as a permanent repository is designated by the Commonwealth of Massachusetts.

CHAPTER THREE

ENVIRONMENTAL SETTING

Environmental features were important variables that influenced pre-contact and post-contact period human settlement choice and subsistence strategies in southern New England. Knowledge of environmental data contributes to a clearer understanding of what natural resources were available to human groups in the past. Natural features and resources such as bedrock geology, soils, vegetation, wetlands, forest cover, and location relative to major drainage systems and coastal bodies all affected past settlement location, type, and density, as well as the frequency of resettlement. Specific environments contained sets of exploitable natural resources while cultural and technological subsystems determined which of those resources people could or would readily exploit. These data assist archaeologists in making predictive statements about the potential for cultural resources to be present within any given project area or portions of a project area. This chapter presents an overview of the environmental setting in the vicinity of the Royalston Bridge project area. The overview focuses on local topography, bedrock and surficial geology, soils, and hydrology.

Physiography: Worcester Plateau

The project area lies within the central uplands region of Massachusetts. This region, also referred to as the Worcester Plateau, is part of the larger New England Upland physiographic province (Figure 3-1). This zone is characterized by a rugged and hilly topography crosscut by numerous rivers, streams, and smaller intermittent watercourses. The rugged upland terrain of this area is generally uniform in elevation across the low-lying ridge tops and undissected surfaces. Elevations range from 250 feet (ft) NGVD (National Geodetic Vertical Datum) along the river valley drainages to 600 ft atop ridges and hills. Exceptions to this uniformity occur in the form of monadnocks, isolated mountains with elevations of 1,800 to 2,000 ft NGVD, in the northern and western portions of the central uplands region (MHC 1985).

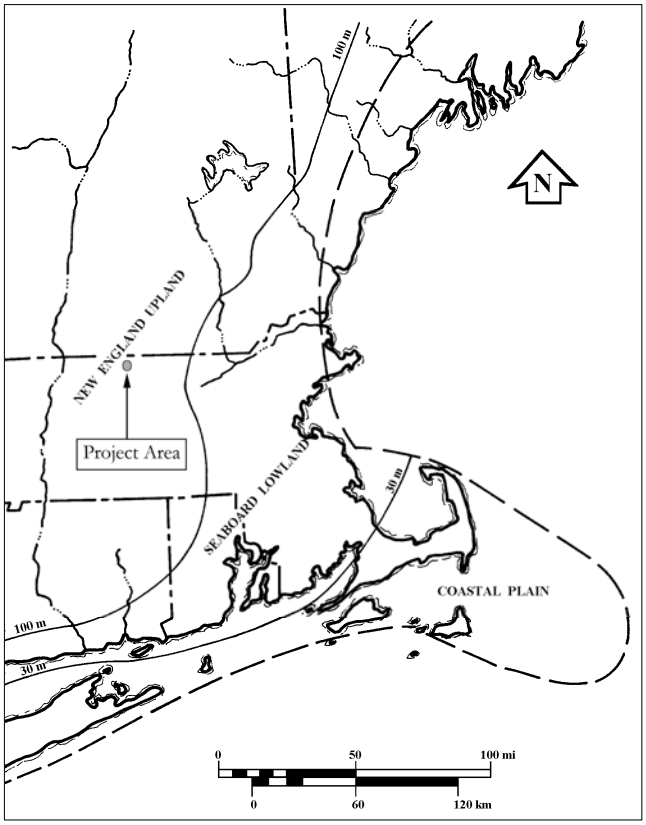


Figure 3-1. Physiographic zones of New England, with the approximate location of the project area within the New England Upland (source: Fenneman 1938).

The present topography of the Worcester Plateau is the result of pre-glacial, glacial, and post-glacial erosion and deposition. During the Wisconsin Period, approximately 17,500 years ago, the advance and retreat of the continental ice mass eroded and picked up bedrock, realigned drainages, and deposited till, erratics, and other glacial material along its course. The slow retreat of the ice sheet, estimated to have been about two

miles thick at its maximum stage in this region, depressed, shaped, and scoured the landscape while leaving widespread glacial deposits. In upland areas this resulted in a moderately thick veneer of ice-deposited glacial till, a heterogeneous mix of clay, silt, sand, gravel, and boulders, through which bedrock occasionally outcrops. The melting of the Wisconsin ice sheet redeposited meltwater and carried stratified drift throughout the river valleys and lowland areas of the upland which resulted in a variety of small-scale landforms.

Kame terraces, flat-topped terraces of sand and gravel, were formed along valley walls by meltwater streams. Eskers, sinuous, low ridges of sand and gravel, were deposited by streams running through channels in the ice mass. Stratified deposits of glacial outwash formed broad areas called outwash plains. These plains are typically flat-topped, well-drained, free of boulders, close to water, and clustered in riverine valley settings. Masses of stagnant ice that had become detached from the glacier were surrounded or partly covered by sand and gravel outwash from the melting glacier. When the detached mass of ice melted, the drift settled and left crater-like pits or kettle holes (MHC 1985). Many of the ponds and small lakes in the uplands region are formed from such kettle holes. Outwash plains were often selected as sites for habitation due to their flat well-drained terrain and proximity to water.

Bedrock and Surficial Geology

The underlying bedrock of the central uplands consists of three principal north-south oriented bands of igneous and metamorphic rocks. The western band consists primarily of granites in the north and schists in the south. The central band is characterized by fine-grained metamorphics, mostly phyllites with some quartzites and schists. The eastern band is comprised of crystalline granite (Cameron and Naylor 1976).

The topography of the region is largely controlled by the structure and form of the underlying igneous and metamorphic bedrock. Glaciation has modified the bedrock formations by scouring and scraping and by depositing the glacial debris and outwash. Pockets of glacial till composed of poorly sorted silt, sand, pebbles, and boulders are interspersed throughout the area. This glacial till, deposited directly by the ice, is present on the crests and upper slopes of the hills and is thickest on the lower slopes and in the valleys. Overlying the till in the valleys are extensive glacial outwash deposits of sands and gravels in kame formations and ice channel fillings known as eskers.

Soils

Soil is produced as a result of "physical and chemical processes acting upon geological materials" (USDA 1985). Glacial ice picked up and ground bedrock that it then transported and deposited as a jumbled mixture of fresh unweathered rock particles of varying sizes. These sediments were separated and sorted by glacial meltwater and strong winds that distributed fine particles. Vegetation became established, chemical processes of weathering increased, and rock sediments developed into soils. Differences in regional soils are primarily attributed to the interaction of the five factors of soil formation: the parent material, climate, living organisms, relief, and time. The soils in the Worcester Plateau have developed over a relatively short span of time, approximately 15,000 years since the final retreat of the glaciers (USDA 1985).

Since the glacial epoch, the mantle has been modified by weathering, erosion, and drainage conditions. Due to the recent change of the parent bedrock material, these young soils have formed incompletely developed profiles. The slow rate of the soil-making processes is due to low summer temperatures and the length of time of snow cover that keeps the soil frozen. There has been slight podzolization (soil horizon development) in elevated sandy soils. The predominantly brown color of the soils in this area is due to the oxidation of iron and accumulation of organic material.

The USDA Web Soil Survey identified three soil types within the project area: Searsport loamy sand, Colton gravely loamy sand, and Becket-Monadnock series (Figure 3-2). The Becket-Monadnock soils (900E) located at the northerly section of the project area and representing approximately 15 percent of the testing area are extremely stony soils found on upland hills, plains and mountain sideslopes with a 15 to 45 percent slope. The Searsport series (28A) representing approximately 50 percent of the testing area south of Becket-Monadnock soils, flanking Lawrence Brook and extending to the southeast, consists of very poorly drained soils formed in thick sandy deposits in pockets and depressions on outwash plains, deltas, and terraces with a typical slope of 0 to 3 percent. The Colton Series (282B) covers approximately 36 percent of the project area in the southwest and southeast quads and is defined as very deep, excessively drained soils formed in glacio-fluvial deposits formed on terraces, kames, eskers, and outwash plains with 3 to 8 percent slope.

Millers River Drainage

The project area falls within the Millers River watershed (Figure 3-3). The Millers River begins as two small branches, one in north-central Massachusetts and the other in southwestern New Hampshire and generally flows west into the Connecticut River. Along with its numerous streams and two major tributaries (Tully and Otter rivers), the Millers River drains approximately 320 square miles of interior uplands (Bickford and Dymon 1990). Many of the waterways in this region are swift-flowing streams fed by numerous swamps, ponds, and lakes with abundant rapids and falls along their courses. Lawrence Brook flows through the project area. During the nineteenth and early twentieth century the brook was impounded to provide water power to a mill complex that was located within the project area. Further to the south, Lawrence Brook cascades over a series of drops known as Doanes Falls, a center of early industrial development in Royalston.

Existing Conditions

The project area consists of four quadrants surrounding the existing bridge. West of the bridge is characterized by a low-lying swampy area that marks the former location of the mill pond (Figure 3-4). East of the bridge the topography is fairly level and vegetation is a mix of forest near Lawrence Brook and overgrown shrubs in the vicinity of the former mill site (Figure 3-5).

Figure 3-2. Map of the study area showing soil classifications (source: USDA 2012).

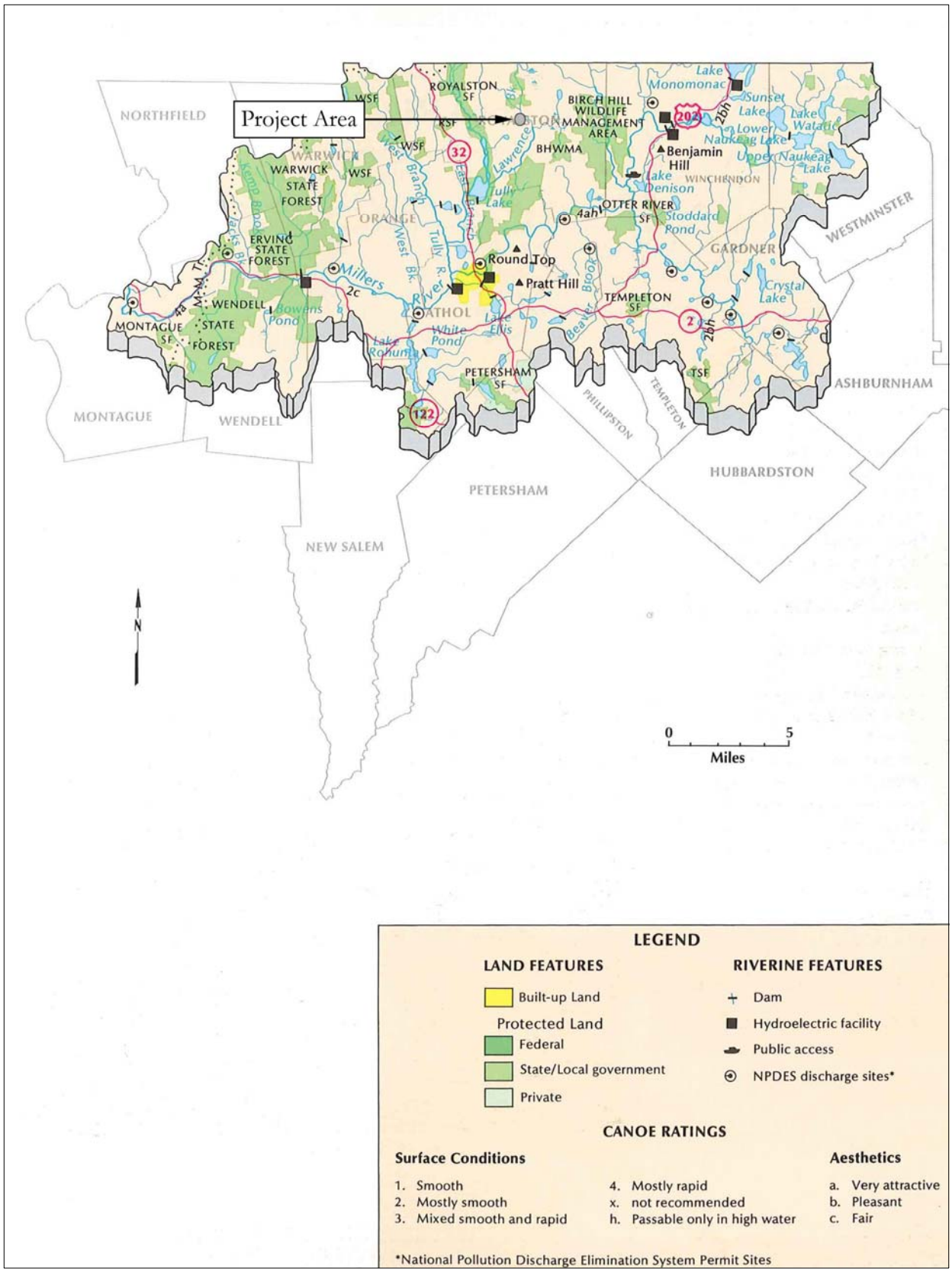


Figure 3-3. Map of the Millers River Basin showing the approximate location of the project area (source: Bickford and Dymon 1990).

a. view is southwest.

b. view is east.

Figure 3-4. Low, wet areas of the former mill pond located in the northwest and southwest quadrants of the project area.

a. view of trail race that empties into Lawrence Brook looking south.

b. view looking down from former mill pond looking south

c. view of wheel pit from North East Fitzwilliam Road, looking southeast.

Figure 3-5. Northeast and southeast quadrants of the project area depicting forest and overgrown vegetation in location of former mill.

CHAPTER FOUR

CULTURAL CONTEXT

In order to gain an understanding of the history of human occupation of the study area it is necessary to have an understanding about the general history, and settlement and subsistence patterns of the Millers River drainage basin in Massachusetts, with a particular focus on the Royalston area. This review is by no means exhaustive, but provides a framework to predict and interpret archaeological resources identified within the study area. The information for this context has been drawn from data including professional CRM surveys, state site files at the MHC, pre-contact and post-contact period culture histories, and site-specific histories including historical maps of the project area. The study includes a review of known and potential archaeological resources within and in proximity to the study area. A general pre-contact period cultural chronology for southern New England is presented in Table 4-1 and a post-contact period cultural chronology for Massachusetts is presented in Table 4-2.

Pre-Contact Cultural Context

The study of pre-contact land use and settlement patterns in central Massachusetts began with the efforts of amateur collectors during the nineteenth century. Professional archaeologists spurred by the preservation movement and supporting legislation have also focused their attention on the region. Today a number of organizations, including government agencies, university-affiliated individuals and groups, professional cultural resource management (CRM) firms, and avocationalists are conducting archaeological research in central Massachusetts. The body of data generated by these efforts provides expanding insights into the past 12,000 years of human occupation.

In recent years river drainage systems have provided an important framework for archaeological investigation in the Northeast. A diverse body of information including data from many sources suggests that river drainages and related topographical features were a basic framework for prehistoric settlement systems and resource exploitation territories. Aside from their utility as avenues of transportation and communication, drainage systems form logical physiographic zones within which a variety of subsistence-related activities would have taken place. From as early as the Middle Archaic prehistoric period to the early historic period, various data such as lithic resource use and ethnohistoric descriptions of traditional land holdings suggest that Native American land use systems were oriented to regional drainage systems and related landforms (Dincauze 1974; Snow 1980; Kenyon 1983; Thorbahn 1984). Large base camps are often located on riverine floodplains, adjacent to falls, rapids, or the confluence of rivers or streams.

The Millers River flows in a southerly and southwesterly direction from its sources in New Hampshire and Massachusetts to its confluence with the Connecticut River (see Chapter 3). Early investigations of the Millers River focused on either its source area in New Hampshire or on sites near the Connecticut River. More recent CRM surveys have investigated a variety of upland areas along the entire length of the river. In 1990, a large CRM survey of the Birch Hill Dam and Reservation located in the towns of Royalston, Templeton, and Winchendon was undertaken (King et al. 1991). This survey resulted in the compilation of pre-contact sites identified along the Millers River. The survey also identified four new sites and find spots. The 1995 reconnaissance survey of the Tully Lake project lands resulted in the identification of twelve pre-contact sites and five find spots (Cherau and Boire 1995).

Table 4-1. Native American Cultural Chronology for Southern New England.

Period	*Years*	*Identified Temporal Subdivisions*[1]	*Cultural Aspects*
PaleoIndian	12,500 - 10,000 B.P.[2] (10,500 - 8000 B.C.)	• Eastern Clovis • Plano	Exploitation of migratory game animals by highly mobile bands of hunter-gatherers with a specialized lithic technology.
Early Archaic	10,000 - 7500 B.P. (8000 - 5500 B.C.)	• Bifurcate-Base Point Assemblages	Few sites are known, possibly because of problems with archaeological recognition. This period represents a transition from specialized hunting strategies to the beginnings of more generalized and adaptable hunting and gathering, due in part to changing environmental circumstances.
Middle Archaic	7500 - 5000 B.P. (5500 - 3000 B.C.)	• Neville • Stark • Merrimack • Otter Creek • Vosburg	Regular harvesting of anadramous fish and various plant resources is combined with generalized hunting. Major sites are located at falls and rapids along river drainages. Groundstone technology first utilized. There is a reliance on local lithic materials for a variety of bifacial and unifacial tools.
Late Archaic	5000 - 3000 B.P. (3000 - 1000 B.C.)	• Brewerton • Squibnocket • Small Stemmed Point Assemblage	Intensive hunting and gathering were the rule in diverse environments. Evidence for regularized shellfish exploitation is first seen during this period. Abundant sites suggest increasing populations, with specialized adaptations to particular resource zones. Notable differences between coastal and interior assemblages are seen.
Transitional	3600 - 2500 B.P. (1600 - 500 B.C.)	• Atlantic • Watertown • Orient • Coburn	Same economy as the earlier periods, but there may have been groups migrating into New England, or local groups developing technologies strikingly different from those previously used. Trade in soapstone became important. Evidence for complex mortuary rituals is frequently encountered.
Early Woodland	3000 - 1600 B.P. (1000 B.C. - A.D. 300)	• Meadowood • Lagoon	A scarcity of sites suggests population decline. Pottery was first made. Little is known of social organization or economy, although evidence for complex mortuary rituals is present. Influences from the mid-western Adena culture are seen in some areas.
Middle Woodland	1650 - 1000 B.P. (A.D. 300 - 950)	• Fox Creek • Jack's Reef	Economy focused on coastal resources. Horticulture may have appeared late in period. Hunting and gathering were still important. Population may have increased from the previous low in the Early Woodland. Extensive interaction between groups throughout the northeast is seen in the widespread distribution of exotic lithics and other materials.
Late Woodland	1000 - 450 B.P. (A.D. 950 - 1500)	• Levanna	Horticulture was established in some areas. Coastal areas seem to be preferred. Large groups sometimes lived in fortified villages, and may have been organized in complicated political alliances. Some groups may still have relied solely on hunting and gathering.
ProtoHistoric and Contact	450 - 300 B.P. (A.D. 1500 - 1650)	• Algonquian	Groups such as the Wampanoag, Narragansett, and Nipmuck were settled in the area. Political, social, and economic organizations were relatively complex, and underwent rapid change during European colonization.

[1] Termed Phases or Complexes
[2] Before Present

Table 4-2. Historic Cultural Chronology for Worcester County, Massachusetts.

General Period*	Cultural Aspects/Diagnostic Cultural Material
Contact & Plantation 1500 – 1675	Initial European exploration and contact with Native American population. Native core areas were established along major river drainages connected by extensive ove trail system. Increasing interaction introduced European diseases and material culture, altered native culture and society, and led to encroachment on native lands. Incre numbers of Native Americans abandoned traditional lifestyles. Many began living in John Eliot's "praying towns", such as those established at Hassanamisco (1 Pakachoag (Auburn), Manchoag, Chaubunagungamaug, and Waentug (Uxbridge). Extensive immigration of Puritan settlers to newly established permanent settle beginning with coastal towns (e.g., Plymouth 1620 and Boston 1630) then spreading inland. Several settlements established during period: Lancaster (1653), Quab Brookfield and Marlborough (1660), Quinshapage or Mendon (1667), and Quinsigamond (1674). Agriculture, fishing, and small local industry formed basis of ecor Waterways and native trails provided major transportation routes. Majolica, early tin–glaze earthenware, Rhennish and Bellarmine stonewares predominate ceramic assemblage. Pipestems with mean bore diameter of 7–9/64ths Handwrought nails only. Freeblown glass bottles, pontil scar, no mold mark.
Colonial 1675 – 1775	Native American populations, both praying town and unconverted, were dispersed as a result of King Philip's War (1675–1676). European settlement and expansion, cur or abandoned due to Native American conflicts, resumed after cessation of hostilities and Peace of Utrecht (1713). Large land grants were divided and 31 towns incorporated (Oxford 1681; Worcester 1684; Leicester, Rutland, and Sutton 1714; Westborough 1717; Brookfield 1718; Shrewsbury, Southborough, and Uxbridge Lunenburg 1728; Dudley and Harvard 1732; Grafton and Upton 1735; Bolton and Sturbridge 1738; Hardwick 1739; Leominster 1740; Holden 1741; Western 1742; and Templeton 1762; Fitchburg and Winchendon 1764; Ashburnham 1765; Petersham 1754; Royalston 1765; Westminster 1770; Princeton 1771; and Hutchinson 1 Worcester County was established in 1731, and by 1765 reported a population of 32,827. Agriculture, raw material collection, and light industry (e.g., grist and saw crafts, trades, etc.) remained principal economic activity in peripheral areas. Five regional core areas developed at Brookfield, Lancaster, Mendon, Sutton, and Worc Intracoastal and international trade with other colonies, Europe, Africa, and West Indies (i.e., "triangle trade" in sugar and molasses, rum and slaves) prospered. Massach colonists, angered by British economic restrictions (e.g., Stamp Act 1770, Townshend Acts 1767), rebelled in Boston Massacre (1770), Boston Tea Party (1773), and f started fighting at Lexington and Concord (April 1775). Imported tin–glaze earthenware, white salt–glaze, English brown, Westerwald and scratch–blue stonewares. Imported and domestic redwares. Mean pipestem bore dia of 4–6/64 inch. Handwrought nails only. Freeblown and molded glass bottles.
Federal 1775 – 1830	The census of 1776 reported a total of 46,437 persons residing in Worcester County. By 1830 this number had reached 84,355. Twenty–two towns were established (Cha Douglas, Hubbardston, New Braintree, Northborough, Northbridge, Oakham, Paxton, and Spencer 1775; Barre 1776; Ward 1778; Milford 1780; Sterling 1781; Gardner Boylston and Geery 1786; Dana 1801; West Boylston 1808; Berlin and North Brookfield 1812; Millbury 1813; and Southbridge 1816). Maritime commerce incr following Peace of Paris (1783) ending Revolutionary War, including development of trade with China. Trade and economy suffered due to Embargo Act (1807) an of 1812. Agriculture remained basis of rural economy. Shift from agriculture to industrial based economy (especially textile manufacturing) began with improvements of power technology and development of new mill privileges. Villages grew around rural mills to house workers. Transportation networks were improved, with 17 state cha turnpikes built by private companies between 1799 and 1830. Blackstone Canal, connecting Worcester and Providence along Blackstone Valley was promoted by Provi investors as early as 1790s, and completed in 1828. Regional cores continued at Brookfield, Lancaster, Mendon, Sutton and Worcester. New cores established at Barre, O and Uxbridge. Creamware and pearlware predominate ceramic assemblage. Handpainted and transfer print decorated. Small bore diameter (4/64 in.) pipestems. Both handwrough machine cut nails. Post 1810 3–piece molded bottles introduced. First tin cans (post 1819).

* Source: MHC 1985; Guzzi 1975; U.S. Bureau of the Census 1808, 1852, 1864, 1883, 1913, 1922, 1952, 1982

Table 4-2. Historic Cultural Chronology Worcester County, Massachusetts (cont'd).

Early Industrial 1830 – 1870	Introduction of regional and interregional railroads (e.g. Boston & Worcester 1835; Millbury Branch 1838; Providence & Worcester 1847; etc.) revolutionized transportation network. Seventeen rail lines and branches began operation during the period, carrying passengers and freight. Blackstone Canal continued until 1848, but with reduced traffic. General decline in agriculture linked to emigration of farmers to western territories and factory jobs, and to competition from rail importation of western produce. Beginnings of regional urban growth encouraged market gardening and dairying specialization in surrounding agricultural areas. Severe economic times (e.g., 1839–1843, 1854, and 1857), expanding industrialization and urbanization, and large scale immigration created an increasingly economically stratified and differentiated population with gaps between unskilled workers, landowners, and capitalists. Civil War (1861–1865) generated major expansion of manufactures, including textiles, metal working, machinery, and shoe and boot industry. Decline in cotton supply due to war embargoes caused many mills to close or convert to manufacture of woolen goods or worsteds. County population more than doubled during the period, with 192,716 residents reported in 1870. Six new towns were established (Webster 1832; Warren 1834; Auburn 1837; Blackstone 1845; West Brookfield 1848; and Clinton 1850). Worcester was incorporated as a city in 1848. Five regional cores (Blackstone Valley, Fitchburg, Milford, Webster, and Worcester) expanded and four urban cores developed (Fitchburg, Milford, Webster, and Worcester). Pearlware, hard white earthenware, yellowware, and domestic stoneware most common. Transferprint design technique predominates. Machine cut nails predominate. 2–piece mold bottles replace 3–piece mold bottles (post 1840). Snap–case bottle bottom finish, no pontil scar (post 1857). Mason jar patented 1858. 1867 lettered panel bottles introduced. Pressed or sandwich–type glass (post 1827). Condensed milk can patented 1856. Vulcanization process patented by Goodyear (1839) resulted in increased production of rubber products.
Late Industrial 1870 – 1915	Worcester County population continued to increase rapidly, reaching 399,657 in 1910. Major influxes of immigrants (esp. Irish, Canadian, E. and S. European) diversified the ethnic composition of the population. Percentage of foreign–born increased from 19.8% in 1865 to 30% in 1905. Fitchburg was incorporated as a city in 1872 and one new town was established (Hopedale 1886). Technological developments resulted in major changes (e.g., steam power, electrification, gas lighting, etc.). Expansion of the railroad system and development of interurban street railways provided service to more towns. Expansion and development of large scale industrial concerns at Worcester, Fitchburg, Leominster, etc. Beginning development of recreational areas and health centers catering to urban clientele in rural upland areas. Farm abandonment and rural population decline begun during previous period continued. Major waterwork project sponsored by Boston's Metropolitan Water Board had major impacts on several rural communities. Early Industrial core areas continued, with major expansion of Worcester and Fitchburg–Leominster regional urban cores. Hard white earthenware predominates ceramic assemblage with yellowware and domestic stoneware. Machine–made bottles most common. Semi–automatic bottling machine (post 1881); replaced by fully automatic machine made bottles (post 1903). Hutchinson stopper (post 1872/9); canning jar closure (post 1875); crown bottle cap (post 1892). 1904 double–seamed tin can introduced.
Modern 1915 – present	County population has continued to increase steadily, with 646,352 inhabitants reported in 1980. Two new towns established (Millville 1916 and East Brookfield 1920). Leominster (1915) and Gardner (1921) were incorporated as cities. Decline of mill industry during Great Depression (1930s), temporarily reversed by World War II, then decline continued following war. Decline offset by growth of professional and service industries (e.g., banking, computer, defense–related, etc.), mainly located along transportation corridors. Introduction of automobile and major improvements in automobile transportation network (e.g., Routes 2 and 20; Interstates 84, 90, 190, 290, 395, and 495). Agriculture remains important in rural economy with market gardens shipping produce to urban areas. Winds and flooding associated with Hurricane of 1938 caused widespread destruction. Creation of Quabbin Reservoir (completed in 1939) to supply water for Boston resulted in inundation of town of Dana and other lands to west. Expansion of existing core areas and continuing development of Worcester and Fitchburg–Leominster as regional urban centers. Hard white earthenware, stoneware, porcelains, and melamine (post WWII). All bottles fully automatic machine–made. Purple manganese glass. Beer can introduced 1935. Pull–tab can opening introduced 1962. Plastic products (post 1900).

PaleoIndian Period (12,500-10,000 B.P.)

The earliest evidence for human occupation of New England dates from the PaleoIndian Period. The retreats of the Laurentide ice sheet and the Wisconsin glacier approximately 14,000 years ago resulted in the moderation of climatic conditions from tundra to open spruce woodland dominated by scrub birch and alder (Funk 1972). Small highly mobile bands of hunter-gatherers moved into the Northeast at this time, roaming large territories and exploiting post Pleistocene megafauna as well as medium and small game, marine resources, and seasonally available plant foods (Dragoo 1976; Snow 1980). This specialized subsistence model has its derivation from Midwestern PaleoIndian sites that clearly exhibit evidence for the exploitation of these large animal species by humans. To date, there is no clear evidence for an association between large extinct animal species and PaleoIndian artifacts in southern New England (Dincauze 1993; Ogden 1977). The use of local lithic types to manufacture stone tools suggests that a restricted territory was the norm for these early hunters. If this were the case, then medium-sized game such as white-tailed deer would have contributed a more important part of the diet than previously thought (Gardner 1983; Meltzer and Smith 1986). Artifacts temporally associated with the PaleoIndian Period include Clovis fluted and Eden-like projectile points, scraping tools, gravers, and drills.

The PaleoIndian Period is generally underrepresented in southern New England but several important sites have been identified in Massachusetts. Two well-documented occupations include the multicomponent encampments at the Bull Brook Site in Ipswich and PaleoIndian loci at the Neponset/Wamsutta Site in Canton. The Bull Brook Site, dating to at least 9,000 B.P., covered several acres and yielded thousands of artifacts including more than 175 fluted points, scrapers, and assorted stone tools (Byers 1954; Grimes 1980; Grimes et al. 1984). The Wapanucket Site in Middleborough was occupied through almost the entire pre-contact period and contains a substantial PaleoIndian component. The Wapanucket Locus 8 Site yielded a large artifact assemblage including diagnostic fluted points, gravers, scrapers, and channel flakes (Robbins 1980; Robbins and Agogino 1964). The majority of PaleoIndian sites in Massachusetts are scattered find spots of diagnostic projectile points.

A single unconfirmed fluted point find in Montague, Massachusetts, is the only report of a possible PaleoIndian occupation in the Millers River Drainage (MHC 1984a). Two confirmed sites have been excavated by avocational archaeologists within the Chicopee Drainage (MHC 1985). There are also a number of unconfirmed fluted points reported for the Chicopee, Blackstone, and Nashua River drainages (MHC 1985).

Early Archaic Period (10,000-8000 B.P.)

The Early Archaic Period was characterized by a gradually warmer and drier climate and dominated by a mixed pine-hardwood forest. This paleoenvironment would have made seasonally available food resources more predictable and abundant, allowing prehistoric populations to exploit a wide range of settings. The lithic technology of the Early Archaic reflects a more diversified subsistence strategy, including beaked unifacial edge tools, cores, flakes, hammerstones, milling slabs, and notched pebble sinkers, indicating an increased utilization of plant and fish resources (Robinson 1992). Corner-notched, stemmed, and bifurcate-based points serve as the diagnostic artifact class for the period. Characteristic of both assemblage types is the predominance of expedient tools made from local lithic sources.

Evidence from some New England river drainage studies, such as Ritchie's review of the Sudbury and Assabet drainages, indicate that a complex multi-site settlement system had been established by this period, with different site locations indicating exploitation of varied resources and environmental settings (Johnson 1993; Ritchie 1984). Despite a paucity of recorded sites from this period, it is likely that populations increased. The problematic recognition of components, due to the lack of diagnostic materials (bifurcate-base point assemblages) and radiocarbon dates, have partially contributed to the perceived low frequency of Early Archaic sites within New England. In addition, many sites dating to this and the

PaleoIndian Period may be buried under alluvium or slope wash, or are situated in isolated and eroded upland locales (O'Steen 1987). At coastal locations, these sites were likely submerged by rising sea levels.

The Early Archaic Period, as with the PaleoIndian Period, is not well represented in the archaeological record for this part of central Massachusetts. Ten sites in Worcester County have been identified as containing Early Archaic depositions based on the presence of diagnostic bifurcate base points. All but two of these were identified from surface collections and therefore lack contextual information. Seven of these sites lie within the Chicopee drainage, and the remaining three are in the Blackstone Drainage, including the Mill River site (Roop 1963). No diagnostic Early Archaic artifacts have been reported in the Millers River Drainage.

Middle Archaic Period (8000-5000 B.P.)

The distribution and somewhat higher density of Middle Archaic sites in New England indicates that a multi-site seasonal settlement system was firmly established by this time. Sites from this period also appear to cluster around falls and rapids along major river drainages, where the harvesting of anadromous fish and various flora resources was combined with generalized hunting practices (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; Maymon and Bolian 1992). The seasonal pursuit of anadromous fish species may have developed in response to the development of socioeconomic territories defined by major river drainage basins (Dincauze and Mulholland 1977). Climatic and biotic changes continued and deciduous forests of oak, beech, sugar maple, elm, ash, hemlock, and white pine began to emerge. By this time, the present seasonal migratory patterns of many bird and fish species had become established (Dincauze 1974) and important coastal estuaries had developed (Barber 1979).

The Middle Archaic Period in southern New England is marked by Neville-like, Neville-variant, and Stark-like projectile points (Dincauze and Mulholland 1977; MHC 1985; Ritchie 1979). With the introduction of groundstone technology a variety of tool types, including net sinkers, gouges, plummets, and atl-atls (weights), were introduced into the lithic assemblages (Dincauze 1976). A preference for locally available (within established territories) lithic raw materials for a variety of bifacial and unifacial stone tools is also evidenced at many sites. For example, quartzites, available as riverine and glacial cobbles in many parts of central Massachusetts, were used for chipped stone tools found at sites in Worcester County (Leveillee 1995).

Middle Archaic Period sites and components are more numerous than those of the preceding temporal period and archaeological research at sites on and near the coast shows that by the Middle Archaic Period, native populations were utilizing marine resources. There are approximately 23 known Middle Archaic sites in central Massachusetts. Fifteen of these sites are located within the Chicopee Drainage (MHC 1985). Until the 1995 reconnaissance survey of the Tully Lake project lands, Haley's Meadow in Athol and the Robert Verner Site in Erving were the only known sites in the Millers River Drainage to contain a Middle Archaic component (MHC site files). The Doane Falls Site has been tentatively identified as containing a Middle Archaic component based on a quartzite projectile point with morphological attributes similar to a modified Neville or Atlantic point (Cherau and Boire 1995). The point was located on a small high knoll overlooking the confluence of Lawrence Brook and the Tully River at the base of Doane Falls.

Late Archaic Period (5000-3000 B.P.)

The Late Archaic Period was marked by a climatic shift to drier and slightly warmer conditions with a significant decrease in precipitation. During this period, oak, pine, and beech reached their full extent, and wetlands became more abundant along river margins. Late Archaic Period settlement in central Massachusetts has been documented at a number of site locations along most of the region's principal water courses in Massachusetts. Late Archaic sites have been identified adjacent to swamps, riverine and

marsh zones, upland areas, and streams and brooks. The large number of sites and artifacts attributed to the Late Archaic Period, coupled with the high density of sites and their occurrence in a wide range of habitats, has been interpreted as reflecting a dense population intensively exploiting an extremely broad spectrum of resources (Dincauze 1974; Ritchie 1985). Increase in occupation could have coincided with a period of climatic warming beginning approximately 5000 B.P. (Funk 1972). Single and multi-component campsites were used for seasonal resource procurement activities. Regularized shellfish exploitation is first observed during this period.

The Late Archaic Period is comprised of three major cultural traditions: Laurentian, Small Stemmed, and Susquehanna. The Laurentian Tradition is the earliest phase of Late Archaic activity in the area. This tradition is marked by the Normanskill, Vosburg, Otter Creek, Brewerton, and Broad Eared projectile point types. These points are manufactured primarily from materials widely available in central Massachusetts in bedrock veins and outcrops and as riverine or glacial cobbles. Site distributions from the Laurentian Tradition oriented to the central uplands region, which has been interpreted as suggesting an essentially interior, riverine adaptation (Ritchie 1971; Dincauze 1974).

Other Late Archaic Period sites represent the Susquehanna and Small Stemmed traditions. The Susquehanna Tradition has been most widely associated with mortuary/ceremonial sites in the coastal zone of New England (Dincauze 1968). Artifacts associated with this tradition consist of Atlantic, Wayland Notched, and Susquehanna Broad projectile points and several varieties of bifacial blades. Susquehanna Tradition materials were manufactured in a variety of lithics, including local quartzites, eastern volcanics, and exotic cherts.

Despite recent revisions about the diagnostic value of Small Stemmed projectile point types, the Small Stemmed tradition continues to be an accepted Late Archaic cultural affiliation, although the duration of the tradition has been extended into the Woodland Period in some areas (Mahlstedt 1985; Rainey and Cox 1995; Wamsley 1984). This tradition may be a regional development out of the Middle Archaic Neville/Stark/Merrimack sequence (Dincauze 1976; McBride 1984). Small Stemmed and Small Triangular (Squibnocket) point types are characteristically associated with a quartz cobble technological industry (McBride 1984) and with almost equal frequency quantitatively dominate both artifact collections and excavated sites. Lamoka and Bare Island points are also associated with this tradition. The Small Stemmed tradition exploited a wide range of ecozones including coastal and riverine settings as well as upland areas.

Sites from the Late Archaic Period are well represented in central Massachusetts, particularly in the Chicopee, Blackstone, and Nashua River drainages (MHC 1985). There are three known Late Archaic sites within the Millers River Drainage: the Haley's Meadow Site, the Robert Verner Site, and the Blueberry Knoll Site, which is a campsite on Trout Brook, located through a CRM survey in Templeton, Massachusetts (MHC site files; King et al. 1991).

Transitional Archaic Period (3600-2500 B.P.)

The Transitional Archaic Period marks the interim between the Archaic and Woodland periods, and represents a time of changing cultural dynamics. An extensive trade network, increased burial ceremonialism, and the development of technologies strikingly different from those of the Late Archaic characterize this period. These new technologies may have been developed by the local population or introduced by groups migrating into New England. One new development was the use of steatite, a soft, easily carved soapstone. Soapstone was extracted from steatite beds that ran through the nearby Blackstone Valley River Drainage. The Horne Hill Soapstone Quarry (19-WR-82) in Millbury, which was excavated by the W. Elmer Ekblaw Chapter of the Massachusetts Archaeological Society, contained specialized tools such as picks, chisels, and abrading stones from over 6 ft of soapstone debitage (Bullen

1940). Steatite vessel forms and smoking pipes were used domestically, ceremonially, and possibly for trade as well.

This period represents the first use of heavy vessels and implies an increasing sedentism. The use of steatite is considered to be a transitional step towards the manufacture of ceramic vessels (O'Steen 1987). The Transitional Archaic Period contains the earliest evidence for the manufacture and use of ceramics in southern New England (Thorbahn et al. 1980; McBride 1984; Pfeiffer 1990; Glover and Begley 1996). Steatite vessels ceased to be made during the Early Woodland Period when they were replaced by ceramics, although certain steatite quarries were reopened for making steatite stone pipes (Ritchie 1985).

Burial ceremonialism also increased dramatically during this period as illustrated by the complex red ocher internments at the Watertown Arsenal and the complex mortuary ritual seen at the Millbury III Site in Millbury. Grooved axes, cruciform drills, pestles, a copper blade, and Susquehanna and Watertown variety projectile points were all included in the Millbury III burials (Leveillee 1998). Several radiocarbon dates ranging from 3985 ± 145 to 1460 ± 90 B.P. were obtained from approximately 26 features/deposits. The Millbury III radiocarbon data have been interpreted as representing multiple depositional episodes spanning numerous generations that reflect a continuity of ideology transferred and reinforced through ceremonialism (Leveillee 1998).

Transitional Archaic Period sites are found in association with rivers, smaller upland ponds, and larger ponds and lakes. Evidence of complex mortuary rituals is frequently encountered at regional sites, such as the Millbury III Site (Leveillee 1995). In terms of technological aspects, the Transitional Archaic Period is most commonly associated with Susquehanna Tradition artifacts as well as the continuation of the Small Stemmed Tradition and the development of Orient Phase materials.

The Transitional Archaic Period is not well represented in the area, although it is possible that several sites identified as Late Archaic have Transitional Archaic depositions. The Doane Falls Site has been tentatively identified as containing a Transitional Archaic component based on a quartz Small Stemmed point with some morphological attributes of an Orient point and a quartzite point with morphological attributes similar to a modified Neville or Atlantic (Cherau and Boire 1995). The Haley's Meadow Site contains possible Atlantic projectile points. Sites dating to the Transitional Archaic Period containing steatite fragments have been identified in the Blackstone and Chicopee drainages (Bullen 1940; Fowler 1966; Leveillee 1995).

Early Woodland Period (2500-1650 B.P.)

The Early Woodland Period is generally underrepresented in the regional archaeological record, suggesting a population decline and/or poorly documented tool assemblages. Some archaeologists have suggested that a population decline occurred in the region during this period associated with any number of causal factors including unfavorable environmental conditions and unknown epidemics (Dincauze 1974; Fiedel 2001; Lavin 1988; Mulholland 1988; Snow 1981; Wendland and Bryson 1974). However, the low representation may be more of a function of a lack of recognition of Early Woodland cultural material components because of overlapping (Susquehanna and Small Stemmed) and/or poorly documented tool assemblages. Given the problems inherent in using one artifact type alone as a temporal indicator, the presence of early ceramics in conjunction with point types is used to determine Early Woodland Period occupation in the absence of radiocarbon dates.

Coastal resources are believed to have become an important part of subsistence collecting activities and diets, as evidenced by the high frequency of known Woodland Period coastal sites in New England (Cox et al. 1983; Kerber 1984; Thorbahn and Cox 1988). This is also believed to be a time of widespread long distance exchange of raw materials, finished products, and information. There is some evidence for the appearance of task-specific sites (Dincauze 1976). The Early Woodland Period is marked by the clear

emergence of ceramic technology, known as Vinette I, replacing the soapstone vessels that had been used during the Late/Transitional Archaic periods. Diagnostic materials include stemmed and side-notched Adena, Lagoon, Rossville, and Meadowood projectile points. Artifact assemblages for this period comprise a high percentage of exotic lithic materials and speak to an expansion and elaboration of long-distance trade networks.

Twelve of the 13 known Early Woodland Period sites in central Massachusetts are located within the Chicopee Drainage. The "Adena" pipe from the Putnam Farm Site in Wendell is the only documentation of Early Woodland occupation in the Millers River Drainage (MHC 1984a). The Shepardson 1 Site, located during the 1995 survey of Tully Lake fee owned lands, has been tentatively identified as Woodland Period (3000-450 B.P.) based on the presence of grit-tempered aboriginal pottery (Cherau and Boire 1995). The pieces were too fragmentary to identify vessel shape or size. There was no identifiable decoration. The site was located on the first terrace adjacent to the Tully River.

Middle Woodland Period (1650-1000 B.P.)

The Middle Woodland Period was one of increasing population and extensive long-distance social and economic interaction. The late Middle Woodland Period is marked by the introduction of horticulture into the traditional hunting and gathering subsistence practices of human populations in the Northeast. Horticulture led to changes in subsistence, population growth, organization of labor, and social stratification (Snow 1980). Larger base camps in riverine and coastal settings were established in conjunction with ever-increasing sedentism. This is supported by increased instances of storage pit features suggesting production of bulky foods. The degree of dependence on horticulture and its significance as a stimulus of social and economic change in the late prehistory of southern New England is still a topic for further archaeological research (Mrozowski 1993).

It has been suggested that changes in settlement and subsistence strategies during the Middle–Late Woodland transition may have occurred independently of the adoption of horticulture (McBride and Dewar 1987). Recent studies have shown that late Middle Woodland components are marked by a high percentage of exotic lithics. Diagnostic Fox Creek and Jack’s Reef projectile points are found in association with Pennsylvania jasper, New York State cherts, Ramah chert (Labrador), Kineo felsite (Maine), and Lockatong argillite (northern Mid-Atlantic region) (Goodby 1988; Luedtke 1988; Mahlstedt 1985). This assemblage of exotic raw materials suggest that Middle Woodland populations inhabiting southern New England took part in an extensive network of social and economic contacts that extended from Pennsylvania northward to Labrador. Pottery also becomes increasingly stylistically diverse, including grit-tempered coil built vessels with stamped, incised, and dentate decoration of varying quality.

Approximately 12 sites are known to date to the Middle Woodland Period in central Massachusetts. The majority of these sites are located in the Chicopee Drainage. Only two sites have been reported for the Millers River Drainage: the Wills Hill Site (19-FR-37), a small camp that was located in an upland region of Montague, Massachusetts (MHC 1984a), and the Haley's Meadow Site in Athol, Massachusetts (MHC site files).

Late Woodland Period (1000-450 B.P.)

The Late Woodland Period is marked by an increase in ceramic production through improvements in technology. Some populations may still have relied solely on hunting and gathering, while others turned to horticulture. Coastal areas and semi-permanent settlements were preferred. However, larger groups sometimes lived in fortified villages, possibly indicating the presence of complicated political alliances. The Late Woodland Period artifacts represented in the archaeological record include triangular Levanna points, cord-wrapped stick impressed and incised collared finer and thinner grit or shell-tempered ceramic vessels, and increasing amounts of local lithic materials (MHC 1985). This reliance on locally available

lithic materials suggests the formation of ancestral tribal territories that were noted as the resident Native American tribes at the time of European contact.

The Late Woodland Period, while not highly visible, is represented at sites in each of the drainages of central Massachusetts, including the Millers River Drainage. By the Late Woodland Period, Haley's Meadow is thought to have developed into a large village, encompassing up to 4 acres on both sides of the Millers River. A number of Levanna points are recorded as being part of the Haley's Meadow collection. Two mortars or grinding stones are known to have been found in the Millers River Drainage. The first grinding stone was located at the Queen Lake Site (19-WR-403) in Phillipston on Wine Brook, a tributary of the Otter River. A second grinding stone was located in Winchendon next to a seasonal tributary of the Millers River. No diagnostic artifacts are present at either site. They are believed to be related to the Woodland Period because of the association of grinding stones with corn agriculture.

Contact Period (450-300 B.P.)

By the Contact Period, the southern New England Algonquin subgroup known as the Nipmuck inhabited the central Massachusetts region. Their settlement in semi-permanent villages focused on river drainages and tributary streams. Subsistence systems most likely remained oriented towards hunting and gathering of seasonally available natural food resources. An increased dependence on horticulture is considered likely given the appearance of semi-permanent, sometimes fortified, village settlements (MHC 1985). Political, social, and economic organizations were relatively complex and underwent rapid change during European colonization.

This region, particularly the northern and western sections toward New Hampshire and Vermont, also falls within the cultural boundaries of the Western Abenaki. The subgroup Squakeag, which inhabited the northwestern area of central Massachusetts toward the Connecticut River Valley, was heavily involved in the highly profitable yet competitive fur trade. Because of this involvement, the Squakeag clustered together in large fortified villages and later aligned themselves with the Abenaki and French in exploitation of the northern fur territories (MHC 1985). Several Native American trails crossed through Royalston, including the north/south routes that are present-day Route 32 and Athol Road (MHC 1984b, 1985) (Figure 4-1).

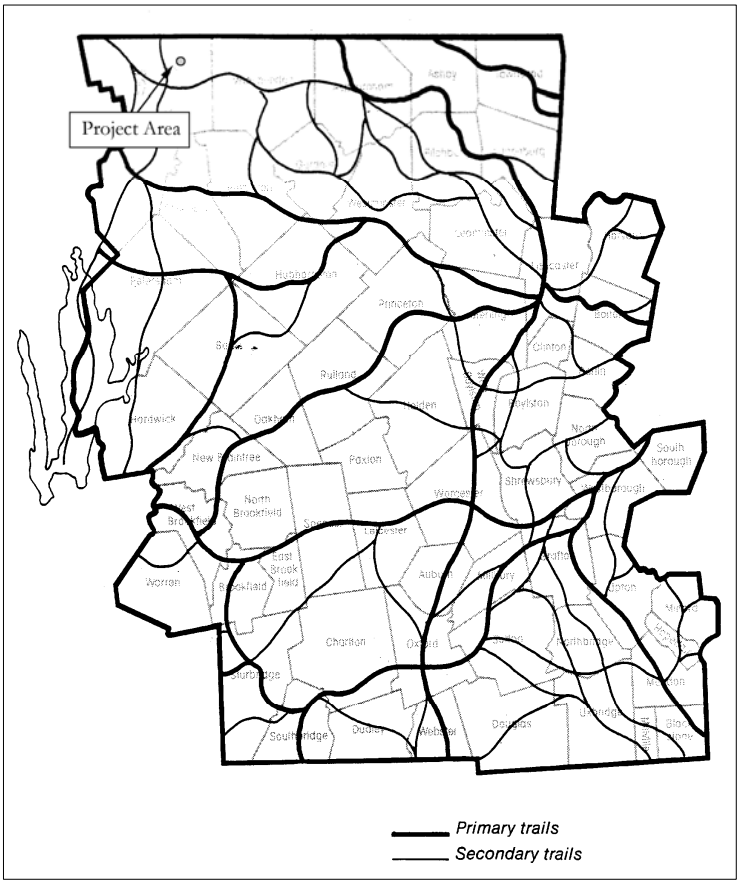


Figure 4-1. Contact and Plantation period trails in Worcester County, Massachusetts, with the approximate location of the project area (source: MHC 1985).

Post-contact Development of Royalston (Worcester County)

Royalston, Massachusetts is located in northern Worcester County; bounded by Winchendon to the east, Warwick and Orange to the west, Athol, Phillipston and Templeton to the south, and New

Hampshire to the north. Included in the town are the three principal villages of Royalston Center, West Royalston, and South Royalston. The hilly terrain and generally stony soil make Royalston less well suited to agriculture than southern Worcester County towns or locations along the rich Connecticut River Valley. The industrial history of the town includes small scale agriculturally based mills, textile industries, and woodenware factories operating off the Millers River and its tributaries.

Contact and Plantation Period (1500-1675)

Actual settlement of Royalston did not begin until after the close of King Philip's War (1675-1676) and the French and Indian War (1755-1763), two episodes that would have cleared the territory of many of its original inhabitants. The epidemic of the 1630s that spread eastward from the Connecticut River valley also contributed to the reduction in native populations. However, the near absence of European/Native American contact in this area during this period does not preclude the presence of native settlement during the sixteenth and early seventeenth centuries.

Colonial Period (1675-1775)

The territory of present-day Royalston was among the last in Massachusetts to be divided by the General Court for settlement. Twenty-three hundred acres of its area were comprised of four early land grants, made between 1737 and 1742, known as Pierpont's, Priest's, Hapgood's, and a final grant to Benoni Moore, Joseph Petty, and Robert Cooper. In 1752 the General Court ordered that all the remaining lands not yet granted lying between Athol (Pequog), Templeton (Narragansett Number Six), and New Hampshire should be surveyed and sold at public auction (Figure 4-2). In his historical address, the Hon. Fred W. Cross referred to this as a "genuine closing-out sale" (Crane 1924). Samuel Watts, Thomas

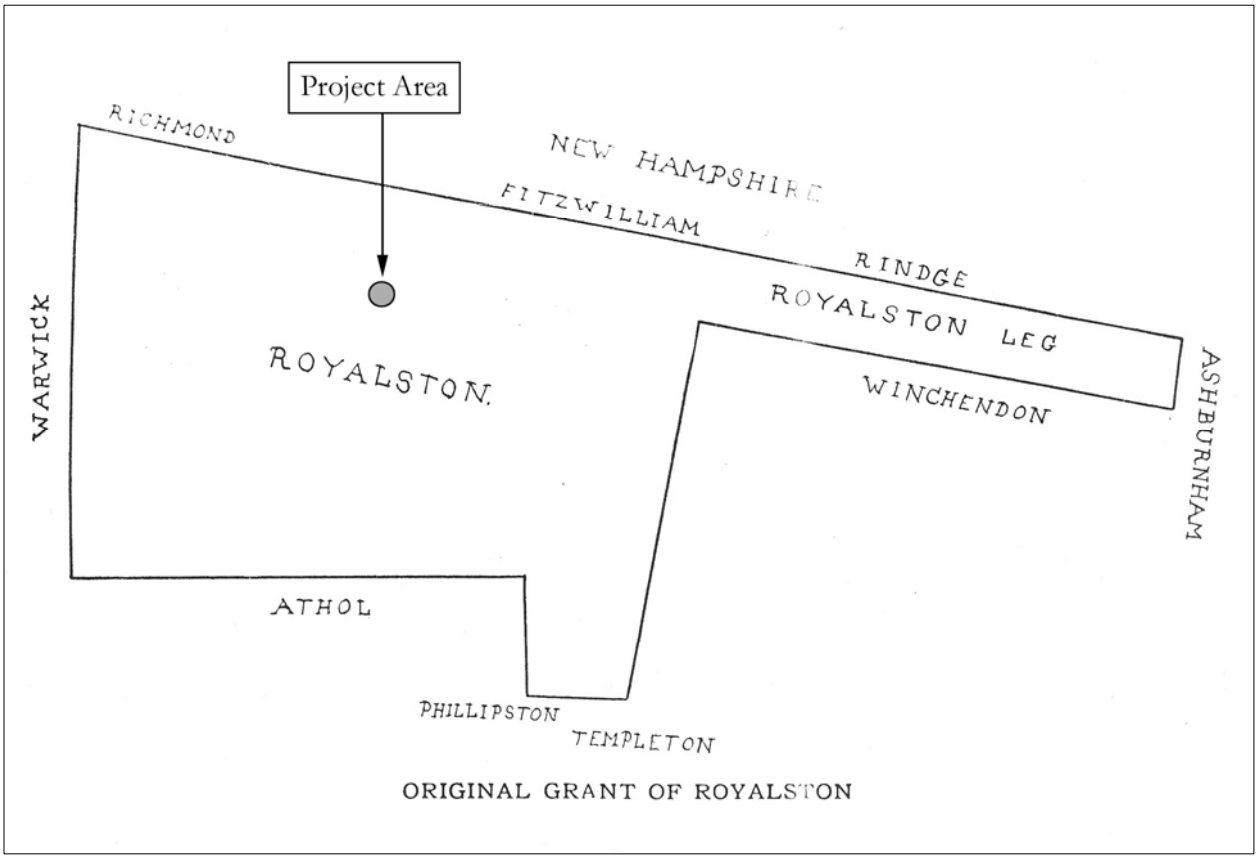


Figure 4-2. 1783 map of the original land grant of Royalston, with the approximate location of the project area (source: Caswell 1917).

Hubbard, Isaac Freeman, Joseph Richards, Isaac Royal, Caleb Dana, James Otis, Joseph Wilder, Jr., and John Chandler, Jr. purchased this unclaimed tract of land, 28,357 acres, at public sale on December 27, 1752 for 1,348 English pounds or a little less than 25 cents an acre. Several other proprietors (including: John Hancock, James Bowdoin, and Lady Temple, widow of Sir John Temple), bought acres of Royalston land several years later.

The proprietors, at their first meeting, held at the "Bunch of Grapes" tavern in Boston in 1753, voted that the land be called Royal-shire, "whereupon the Honorable Isaac Royal generously gave his word to give the partners twenty-five pounds sterling towards building a Meeting-House in said town." (Caswell 1917). It was at this first meeting that the proprietors ordered the land to be laid off in sixty, hundred acre lots for settlers, and three others for a minister and meetinghouse, the town common, and for the school. Although the General Court granted Royalston lands to proprietors in the early and mid eighteenth century, actual settlement stalled because of frontier hostilities during the French and Indian War (1755-1763). It was not until 1762 that twenty one settlers, comprising 6 families, from southern and eastern Massachusetts established permanent homesteads in Royalston. A majority of these earliest settlers came from Sutton and Rehoboth, Massachusetts (Caswell 1917). During the early years Royalston's economic base may be defined as dispersed farming supported by agriculturally based mill industries. Crops produced included corn, rye, barley, oats, and hay (Bullock 1865). Horses, oxen, cows, and swine were also raised. Comparatively, Royalston ranked low in commerce, community wealth, and agrarian prosperity due to the moderate to poor agricultural potential of the town's lands. Settlement was dispersed with clusters along roadways, such as Athol Road, Richmond Road, and Warwick Road. In 1764, the first meetinghouse was constructed near the town's common. In 1765, after three years of active settlement, the town was incorporated with a total area of 30,657 acres.

During the second land division which took place in 1765, additional lands were laid out in 200 acre or smaller lots, with meadowland sectioned into 10-acre lots. This division also set apart 231 acres for the first minister, 424 acres for the ministry, and 420 acres for the school. The first action taken by the town after incorporation was a vote in 1767 to lease out the school land. Two years later it was decided to sell the 420 acres in order to establish a school fund to pay for teachers, supplies, and schoolhouses. Although instructors were hired, no school buildings were built for some years and instruction took place in people's dwellings and barns.

When the proprietors of Royalston blocked out the town, they knew that the settlers would need saw mills and grist mills as much as they would need the meetinghouse and schools. Therefore industrial development closely followed settlement, and the proprietors sent a committee in 1762 to determine the best mill site in Royalston and offer a bond to anyone agreeing to build the first mill. Benjamin Marsh received title to build the first mill on Lawrence Brook on the site chosen by the proprietors, later called Doanes Falls. Marsh built the mill, but defaulted on the bond given to him by the proprietors and sold out to Isaac Gale sometime before 1779. Before the close of the Colonial Period, a number of other gristmills and sawmills and one tannery were erected in Royalston.

Federal Period (1775-1830)

By 1787, all the land within Royalston's borders had been divided among the settlers. A change in the boundary lines of Royalston occurred in 1780 when a one mile wide strip of land in the northeast corner of the town called "Royalston Leg" was annexed to Winchendon. This transfer of land to Winchendon reduced the territory of Royalston by approximately 2,000 acres. Nearby Orange, Massachusetts received several thousand acres of Royalston land in 1783. Other small adjustments to the boundaries occurred up until 1837, as additional acres were given to Athol and Phillipston in 1799, 1803, and 1837, resulting in the reduction of the town's total area to 26,882 acres.

After the American Revolution Royalston experienced thirty years of peaceful development (Crane 1924). The town center grew into a small residential and commercial center, a local core. A pattern of dispersed agricultural farmsteads and agriculturally based milling characterized settlement in the remainder of the town. Farms multiplied and increased the acreage of tilled land. Sheep raising became an important industry. Saw mills, gristmills, and tanneries increased in number throughout the town. The 1794 plan of Royalston shows seven sawmills, three gristmills, and one fulling mill (Figure 4-3). Several hatters and shoemakers and clothiers were also established in town. A textile mill, built by the Royalston Cotton and Wool Manufacturing Company after the War of 1812, encouraged the growth of South Royalston as a factory village.

The first school house was erected in 1777 in Royalston Center near the meetinghouse. In 1781, the town was divided into six school districts with three more districts established by 1797. In 1797, it was decided to erect a schoolhouse in each district "as near the centre of the districts as the situation of the inhabitants and the roads will admit" (Hurd 1889). At a later date, three new districts were added, making twelve in all, and that number continued until the district system was abolished by law in 1867.

The spiritual needs of the people were attended to in a new Congregational meetinghouse erected in 1797. The Baptists also continued to prosper during this period, their numbers increased and they erected their first meetinghouse. Another historian gives the meetinghouse location as being "on the west bank of the Tully" (Hurd 1889). The Royalston Baptist church gave up its occupancy of the old meetinghouse in the vicinity of Long Pond around 1800 to hold services in a hall in the house of John Jacobs near the junction of present day Warwick Road and Route 32. In 1803, a joint committee of members of the Royalston Baptist church and the Warwick Baptist church began working toward a union of the two groups. In 1805, the Royalston and Warwick Baptist Church dedicated their new, larger (approximately 40 by 60 ft), "elegant" meetinghouse at the crossroads in northwest Royalston known as "Baptist Common."

Early Industrial Period (1830-1870)

During the first two decades of the Early Industrial Period, Royalston experienced its greatest population growth with the number of inhabitants rising from 1,493 in 1830 to 1,546 in 1850. The population peaked at 1,667 in 1840 but then proceeded to steadily decline throughout the late nineteenth and early twentieth centuries. The town's birth rate continued to climb until 1855, and then it also began a steady decline. From 1861 to 1900 death rates in Royalston climbed higher than the birth rate. Little emigration from neighboring regions fortified the declining population base (Sinclair 1980). Royalston, perhaps due to its lack of large scaled manufacturing, did not attract significant numbers of foreign immigrants who bolstered the populations of other northern Worcester County towns in the late nineteenth century. Immigrants of Irish, English, and Canadian descent comprised less than five percent of the total population in Royalston from 1830 to 1870 (MHC 1984b). Immigrant laborers were first employed in the construction of the Vermont and Massachusetts Railroad, which had opened for traffic in 1847. After the railroad was completed, a small number of these laborers, the majority being immigrants from Ireland, settled in Royalston, finding work in the woolen mills or bought farms (Crane 1924) (Figure 4-4).

Before the population decline Royalston enjoyed a period of economic and industrial growth. A town hall built in 1841 attended to the growing civic needs of the expanding community. The Baptists moved to their third meetinghouse in 1846, when a new building was constructed one mile east to a place called "The City." The third Baptist meetinghouse was destroyed by fire in 1894, and the fourth and final church was dedicated in 1896. Additional schools and a high school were constructed to serve the educational needs of the expanding numbers of school children. The district school system was ultimately abandoned in 1867 (MHC 1984b).

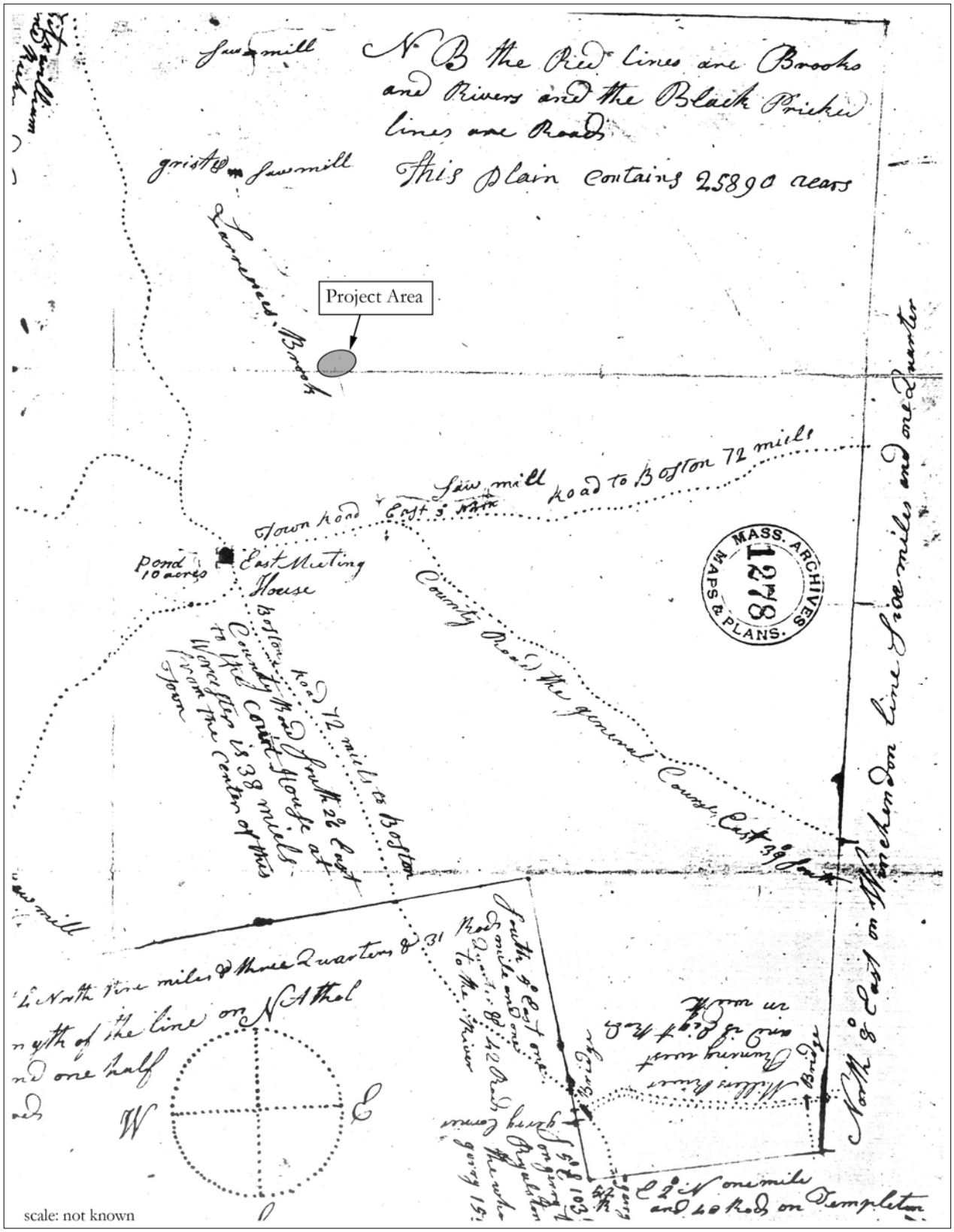


Figure 4-3. 1794 map of Royalston with the approximate location of the project area (source: Town 1794).

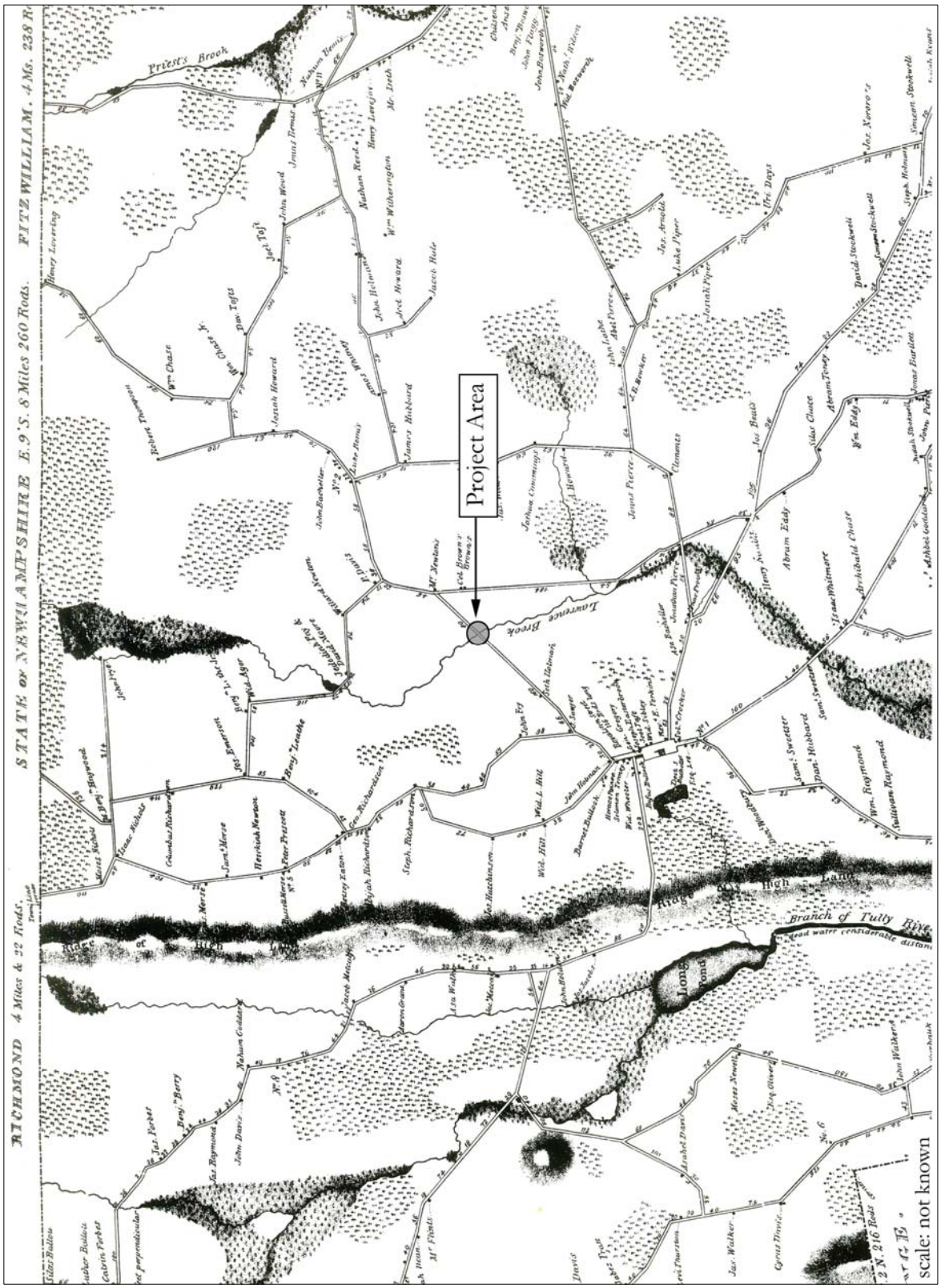


Figure 4-4. 1831 plan of Royalston with location of project area (source: Blake 1831).

Small-scale milling continued, but with a shifting focus. Grist and sawmills continued to operate, and small-scale woodworking shops were established on the tributary streams of the Millers River. By 1867, Royalston possessed a woolen mill (the Royalston Cotton and Wool Manufacturing Company of South Royalston), three manufactories of chairs, furniture, and cabinet ware, and eleven saw mills (Figure 4-5). The area surrounding Doane Falls and Lawrence Brook in particular focused on small-scale woodworking. But Lawrence Brook was not the only stream in Royalston to support industrial activity. Saw mills also operated throughout the Early Industrial Period on Priest Brook, the Tully River, Boyce Brook, and a number of ponds in town.

The emergence of woodenware industries and the growing need for construction materials and fuel enabled saw milling to prosper and lumbering to become a profitable business. In 1865 census figures report 1,400,000 ft of lumber cut for market, 285 cords of staves, 50,000 shingles, chair stock valued at $5,650, 32,000 chairs, 36,000 pails, 6,000 bushels of shoe pegs, $12,000 worth of assorted woodenware, and 1,585 cords of firewood. The aggregate value of all lumber products amounted to $86,556 in 1865 (Bullock 1865). Even during the late nineteenth century timber was still a viable and accessible commodity in Worcester County.

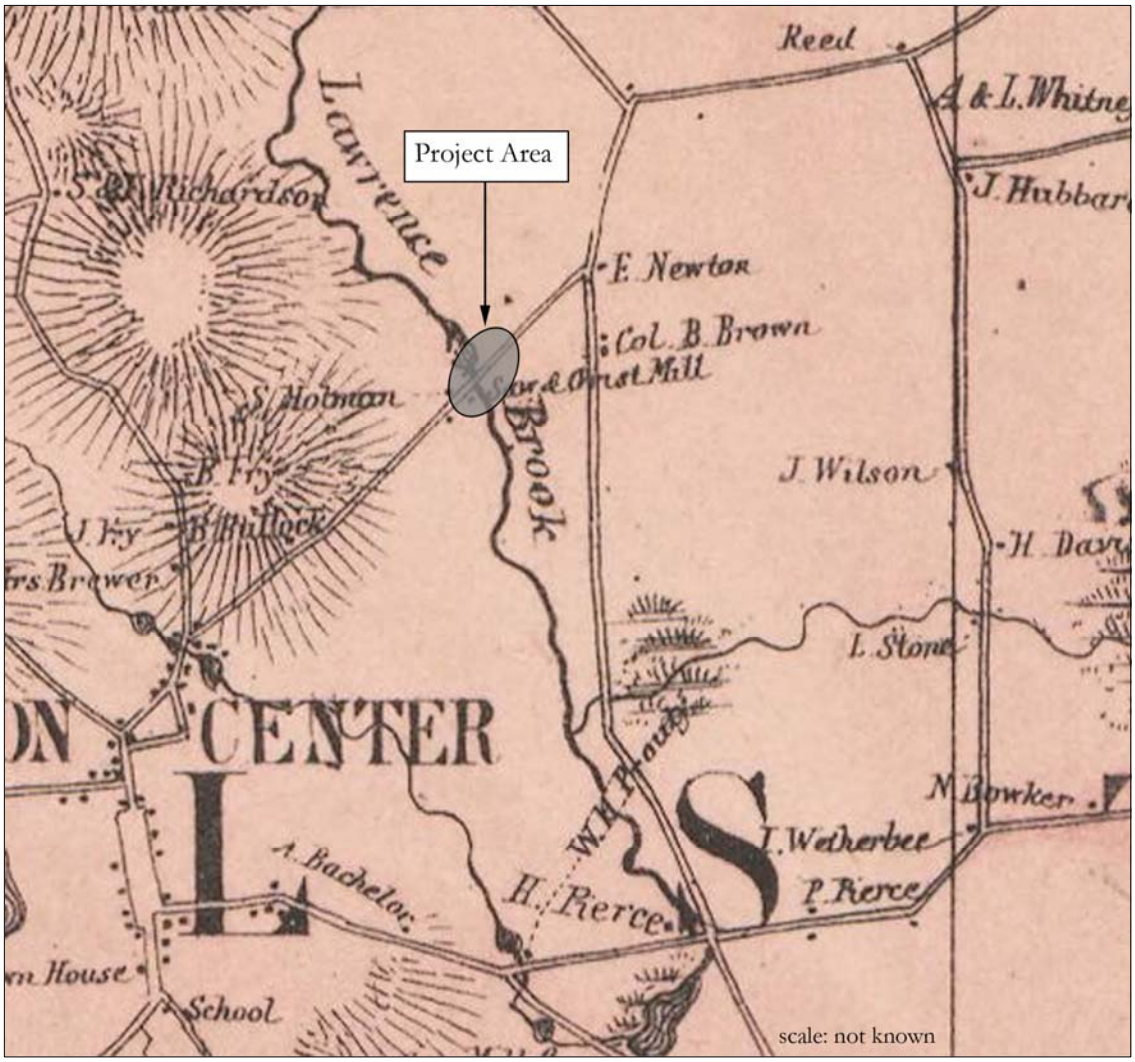


Figure 4-5. 1857 map of Royalston with the location of the project area (source: Walling 1857).

South Royalston was a flourishing village, where most of the manufacturing establishments were located. Mill worker housing and commercial buildings lined the streets. A second Congregational Church, organized in 1837, and a Methodist church, built in 1847, served the growing South Royalston community. The establishment of the Vermont and Massachusetts Railroad in 1847, connecting the town with non-local markets, added to the prosperity of South Royalston.

As the established village at Royalston Center and the industrial core of South Royalston continued to grow, the abandonment of marginal agricultural lands was occurring throughout other areas of the town. By 1866 agriculture was declining in Royalston. The decline is apparent in the assessor's reports, which list 448 oxen in 1828 and 188 oxen in 1868 (Caswell 1917). The number of men pursuing agricultural occupations decreased from 216 in 1820 to 150 in 1830 (MHC 1984b).

Late Industrial Period (1870–1915)

Population continued to decline in Royalston, dipping from 1,354 in 1870 to 890 in 1895 (MHC 1984b). As of 1889, there were only ten schools supported by the town, which had ceased to support its own high school (Hurd 1889). Population climbed briefly in 1900 to 958 but quickly declined to 862 by 1915 (MHC 1984b). The numbers of foreign-born inhabitants rose in the late nineteenth and early twentieth centuries, increasing with the numbers of Russian Finns, Canadians, Italians, and Irish immigrants (MHC 1984b).

Agriculture declined further as fewer and fewer farmers were able to compete with western produce brought into New England on the rapidly spreading rail system. The Census of 1875 indicates that 172 farms in operation with a steady decline in the number of livestock (cows, sheep, swine, and horses) since 1850s. The formation of a Grange in 1892 sought to ease the struggles of those still farming in Royalston (MHC 1984b).

Manufacturing employment slowed as small scale agriculturally based mills on Royalston's streams were abandoned. Not all the mills ceased to function, however, and several mill owners bought water powered sites and attempted to introduce new technology. Sawmills in particular were able to respond to the constant needs of Winchendon and Gardner's woodworking factories for lumber (Figure 4-6 and 4-7). The majority of the industrial activity and economic growth continued to focus on the textile factories in South Royalston.

Modern Period (1915–present)

The population remained steady during the Early Modern Period, increasing incrementally from 744 in 1930 to 795 in 1940. Since World War II Royalston's population has fluctuated, reaching a total of 955 in 1980 after the arrival of commuting newcomers during the 1970s (Young 1983). The population remained largely rural, with clustering in South Royalston and the town center. Agriculture declined and industries still functioning barely retained economic viability. The hurricane of 1938 destroyed the American Woolen Company factory, and the company, unable to regroup, left town. Only a few small lumbering businesses and contract construction firms represent the town's industrial interests (MHC 1984b).

Project Area Context

Based on research conducted by MassDOT staff and PAL, a timetable of activity within the project area can be pieced together (Table 4-3 and Table 4-4). The project area was part of Pierpont’s Grant, the largest of four grants in the town encompassing the northeast corner of the town, including the farm of John Holman. John had two sons, Willard and Seth. In 1823, John sold to Seth 318 acres of land “near the center of town” (Appendix D: Worcester Registry of Deeds, Book 231 Page 446). This property included the project area which would become the location of the mill, as well as the “home lot”.

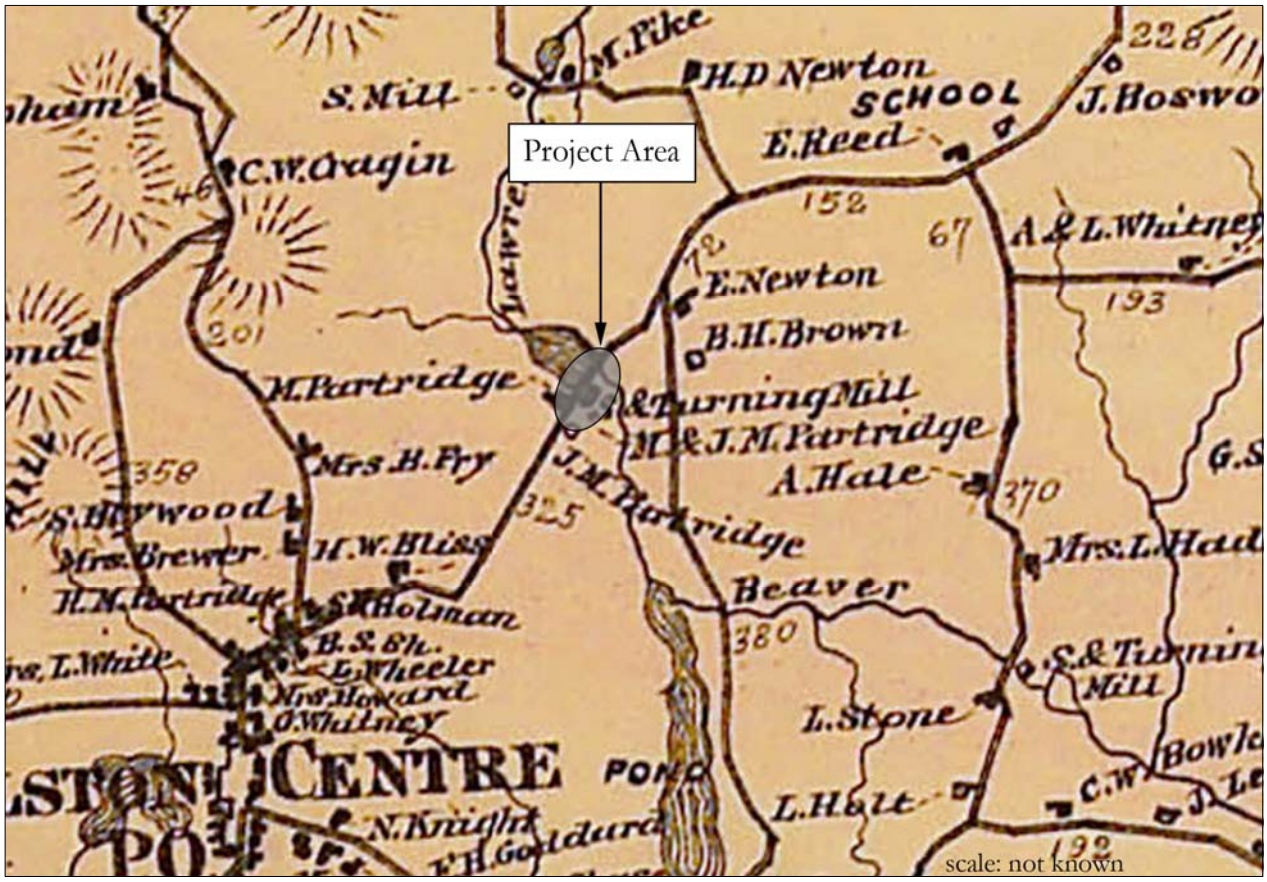


Figure 4-6. 1870 map of Royalston with the location of the project area (source: Beers 1870).

Records do not indicate when the mill was constructed but Bartlett (1907) contends that the grist and saw mill was established relatively early in the town's history. The 1794 town plan (see Figure 4-3) and 1831 map of Royalston (see Figure 4-4) do not show any structures in the project area. The 1831 map does depict a Seth Holman living on North East Fitzwilliam Road south of the project area.

Census data from 1840 identifies Holman's neighbors a Brown, Newton, and Bragg, suggesting that the mill may have been in existence by then. Holman listed himself as a sawyer in the 1850 census and a grist and saw mill are depicted on the 1857 map (see Figure 4-5). Seth had two sons, George W. and Seth N., who helped with the operation of the mill, hauling and sawing logs. Sometime in the early 1850's Seth Holman assumed the mortgage of Joseph Sawyer and by such acquired all of Sawyer's holdings in the center of town, including the home, cottage, furniture shop, water privilege and land, all at the north end of the Common. Holman subsequently expanded his lumber business to include sawed and turned chairs, tubs, pails, and a large variety of wooden goods. George W. was placed in charge of the furniture shop (Bartlett 1907).

The relationship between the saw mill and furniture shop is unclear. Bartlett (1907) indicated there was a wood-working department associated with the grist and saw mill. It is unclear if he is referring to the furniture shop in the center of town or to a shop at the mill site. Bartlett further adds that Holman made complete chairs and that he was in possession of chairs made by his father who worked there (Bartlett's father was employed at the furniture shop in the center of town). Eventually the production of completed chairs was dropped in favor of producing parts for the larger factories in the neighboring towns of Gardner, Winchendon, and elsewhere (Bartlett 1907).

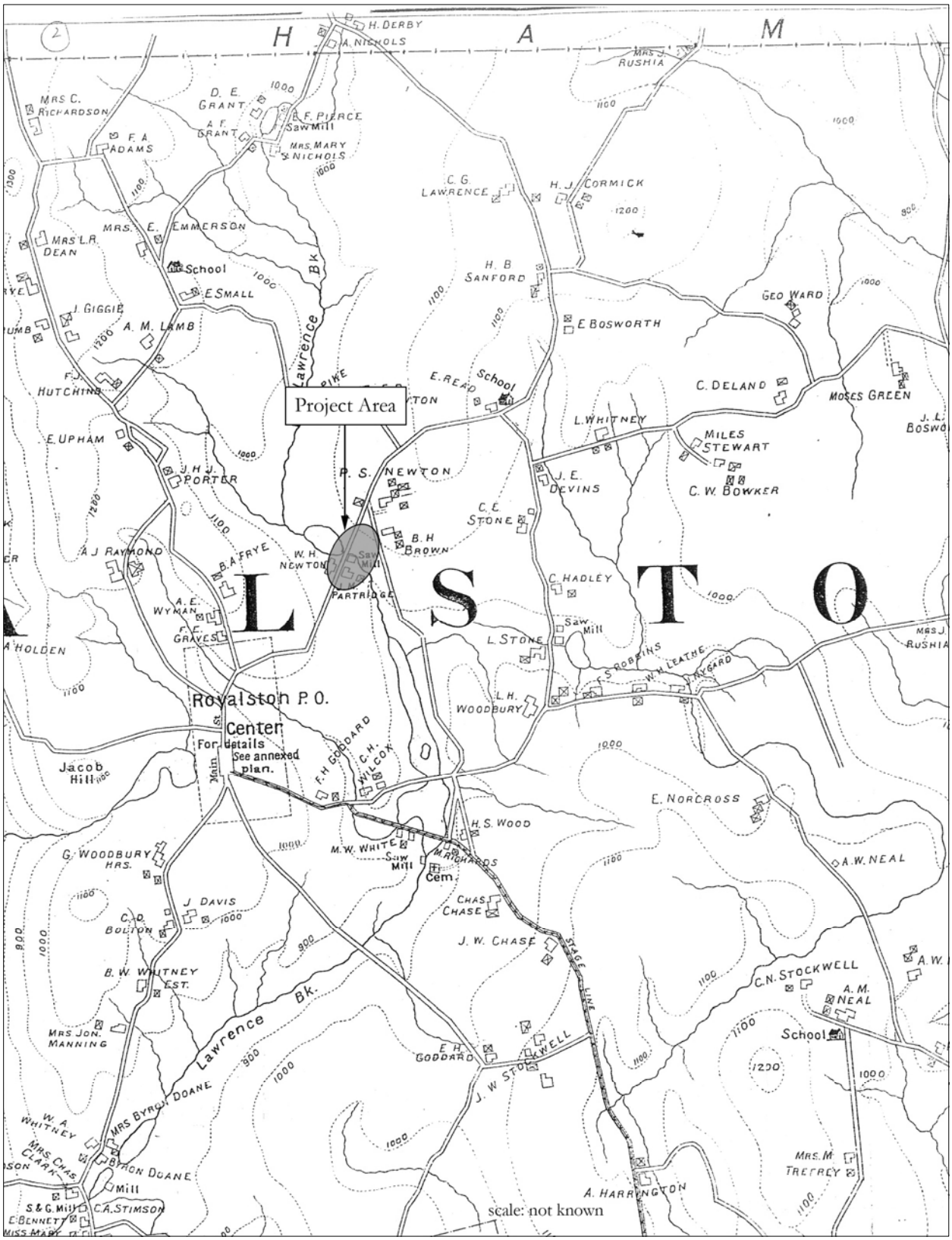


Figure 4-7. 1898 Map of Royalston with the location of the project area (source: Richards 1898).

Table 4-3. Timetable of events within the Royalston Bridge project area (from information assembled by MassDOT staff).

Date	Event	Source
1794	No mill depicted on Town Plan	Plan of the Town of Royalston," Dr. William Town, Surveyor, 1794.
1796	Seth Holman is born in Royalston.	Lilley B. Caswell, *The History of the Town of Royalston, Massachusetts: 1762-1917*. Town of Royalston, MA: 1917.
1823	Seth Holman purchases a parcel of land from John Holman, his father. This parcel encompasses 318 acres "near the center of the Town of Royalston", including the future mill and house site, which Seth Holman would later call "the home lot".	Worcester County Registry of Deeds, Book 231 Page 446.
1830	The mill does not appear on the 1830 Town Plan. Several men mentioned in Seth Holman's 1823 deed do appear, as does Holman himself, though his residence is not yet adjacent to Lawrence Brook.	"Plan of Royalston," Jonathan Blake, Jr., Surveyor, 1831. Copy on file at the Massachusetts Historical Commission.
1850	Seth Holman appears on the 1850 Federal Census. He is identified as a sawyer by trade, and his family is listed immediately after Elmer Newton and Col. Benjamin Brown, who lived a short distance to the north of the mill site.	1850 Federal Census
1855	Seth N. Holman, Seth Holman's son, helped his father in hauling and sawing logs at the mill. In 1855, when Seth N. was 27, his father sold a half-interest in "all the real estate and stock of lumber, unmanufactured and manufactured, with the stock of cattle and horses, farming tools, and other articles of personal property" that Seth owned. This is the first time that the Holman mill at Lawrence Brook is mentioned in a recorded document.	Lilley B. Caswell, *The History of the Town of Royalston, Massachusetts: 1762-1917*. Town of Royalston, MA: 1917. Worcester County Registry of Deeds, Book 551 Page 230
1857	Both Seth Holman and his grist/saw mill appear on the 1857 Walling map. Holman's residence is now located by Lawrence Brook, close to the mill.	"Map of Worcester County, Massachusetts," Henry F. Walling. William E. Baker & Co., Publishers, Boston, MA. 1857.
1858	Seth and Seth N. Holman sell the mill and house site to Maynard Partridge of Winchendon.	Worcester County Registry of Deeds, Book 592 Page 565
1870	Maynard Partridge is living in the Holman house, and his son, John Milton Partridge, is living in a house on the opposite side of NE Fitzwilliam Road, as seen on the 1870 Beers map. The mill is noted as a saw and turning mill owned by father and son.	"Atlas of Worcester County, Massachusetts," F.W. Beers. F.W. Beers & Co., New York, NY. 1870.
1877	Maynard Partridge sells a half-interest in all of the home lot property and buildings, including the mill, to J. Milton Partridge.	Worcester County Registry of Deeds, Book 1007 Page 485.
1878	Willard H. Newton, nephew of neighbor Elmer Newton, marries J. Milton Partridge's daughter, Stella Viola Partridge.	"Marriages Solemnized in the Town of Royalston, County of Worcester in the year 1878," Francis W. Adams, Registrar. Digital copy found at www.ancestry.com.
1884	Maynard Partridge sells the remaining half of his property to J. Milton Partridge.	Worcester County Registry of Deeds, Book 1171 Page 386.
1894	The USGS records three buildings at Lawrence Brook and NE Fitzwilliam Road, presumably the two houses and the mill, with the millpond extending back from the road to the northwest.	"Winchendon, MA-NH Quadrangle," USGS 15 minute topographical map series, surveyed 1887, printed 1894, reprinted 1917.
1898	Willard H. Newton and his family are living in the Holman house, while J. Milton Partridge resides across the street. The mill is noted on the 1898 L.J. Richards map only as a saw mill. An outbuilding also appears on the map, behind the Partridge house.	New Topographical Atlas of the County of Worcester, Massachusetts," L.J. Richards. L.J. Richards & Co., Philadelphia, PA. 1898.
1905	J. Milton Partridge sells the mill and mill privilege to his son-in-law, Willard Newton, and Newton's business partner, Willie Davis, who have begun operating the mill under the name of Newton & Davis. In the same year, the mill burns down, but Newton & Davis resolve to rebuild.	Worcester County Registry of Deeds, Book 2654 Pages 547-551 "American Machinist: A Practical Journal of Machine Construction," July 1 to December 31, 1905 ed. Hill Publishing Company, New York, NY. 1905. Digital copy found on Google Books.
1916	The Massachusetts State Forester publishes a report on the forests of Worcester County, which provides a town-by-town assessment of the composition and acreage of the forests in the County, as well as the forest products and the manufacturers found in each town. The report states that the Newton & Davis mill is capable of cutting 1,000,000 board feet per year	Massachusetts State Forester, The Forests of Worcester County. Wright & Potter Printing Co., Boston, MA: 1917. Digital copy found on Google Books.
1925	Willard H. Newton dies intestate, leaving his property to his only son and heir-at-law, Leon W. Newton.	"Deaths Registered in the Town of Royalston in the year 1925," Willard Hazen Newton, Nov. 2, 1925. Digital copy found at www.ancestry.com
1935	Nearly all of the woodlots and other land once owned in common by Newton & Davis (but not including the home lot) had been seized and sold at auction by the Royalston Tax Collector due to delinquency.	Worcester County Registry of Deeds, Book 7246 Page 289.
1936	It is presumed that the sawmill was demolished at some point following Willard H. Newton's death. However, the first known record that depicts a drained millpond is the site plan developed for the replacement of the bridge over Lawrence Brook.	Massachusetts Department of Public Works, Bridge R-12-004 bridge replacement plans. 1936.
1946	The USGS records only one building located on the northwest side of NE Fitzwilliam Road near Lawrence Brook. The mill and millpond are gone.	"Royalston, MA-NH Quadrangle," USGS 7.5 minute topographical map series, surveyed 1943-44, printed 1946.

Table 4-4. Chain of Title (assembled by MassDOT staff, see Appendix D for Deeds).

Date	Grantor	Grantee	Book/Page	Consideration	Description
8/24/1999	Jane Newton	Dana H. Perkins & Debbra A. Ward	21771/88	$126,400.00	Probate: Jane Newton, Executrix for the Estate of Elizabeth Newton; Lot 1: 85.81 acres, more or less; "Being a portion of the premises conveyed to Leon W. Newton and Elizabeth Newton by deed of Joseph H. Ellinwood, dated May 8, 1957, Book 3859 Page 49". Located on the north side of the road, encompassing the house site.
8/24/1999	Jane Newton	Dana H. Perkins & Debbra A. Ward	21771/342	$47,500.00	Probate: Jane Newton, Executrix for the Estate of Elizabeth Newton; Lot 2: 28.89 acres, more or less; "Being a portion of the premises conveyed to Leon W. Newton and Elizabeth Newton by deed of Joseph H. Ellinwood, dated May 8, 1957, Book 3859 Page 49". Located on the south side of the road, encompassing the former mill site.
8/24/1999	Elizabeth Newton	Jane Newton	21771/340		Affadavit: Jane Newton, daughter of Leon W. Newton and Elizabeth Newton, is Executrix under the will of Elizabeth Newton, Probate Docket No. 89PR0840-E1; lists several attending deeds.
8/18/1959	Joseph H. Ellinwood	Leon W. & Elizabeth Newton	4050/107		End of Instrument: Mortgage lien held by Joseph Ellinwood on behalf of Leon & Elizabeth Newton discharged.
5/8/1957	Joseph H. Ellinwood	Leon W. & Elizabeth Newton	3859/49	Less than $100.00	Mortgage: Property owned by Leon & Elizabeth Newton, including 103 1/2 acres, more or less, situated in the easterly part of Royalston in the vicinity of the Newton and Davis mill yard.
1925-1935	Willard H. Newton				Probate: Willard H. Newton died intestate in November, 1925, leaving his son, Leon W. Newton, as his heir-at-law. In 1935, most of the woodlots and other land once owned in common by Newton & Davis (not including the 'home lot', as Seth Holman put it, including the house and mill sites) had been seized by the Royalston Tax Collector due to delinquency and sold at auction, as recorded in Collector's Deeds recorded in the Worcester Registry of Deeds, Vol. 2654 Pages 547-551.
8/26/1905	J. Milton Partridge	Newton & Davis	1829/140	$1.00 & other considerations	Warranty Deed: "Hereby intending to convey to the said (Willard) Newton & (Willie) Davis the mill priviledge formerly owned by Seth N. Holman and later by Maynard Partridge."
5/13/1884	Maynard Partridge	John Milton Partridge	1171/386	$1,000.00	Deed: "Containing by estimation 104 1/2 acres of land, with sawmill, two houses, barn and other buildings, with machinery and fixtures in said mill and all the priviledges thereto belonging. ... Hereby intending to convey to the said John M. Partridge the remainder of a tract of land, an undivided half of which was conveyed to said Partridge by a deed… recorded in Worcester Registry of Deeds, Vol. 1007 Page 485."
6/5/1877	Maynard Partridge	John Milton Partridge	1007/485	$1,000.00	Deed: "Hereby intending to convey to the said John M. Partridge one undivided half of a certain parcel of land..."
4/12/1858	Seth Holman, Seth N. Holman & Eunice P. Holman	Maynard Partridge	592/565	$4,000.00	Deed: "a certain tract of land with the buildings thereon situate in said Royalston, viz.: beginning at the southwestern corner near the land of Barnet Bullock, at a stake & stones, thence east 98 rods to a marked hemlock tree, thence up the brook, by the land of Elmer Newton, crossing the road leading from Royalston to Fitzwilliam, to land of Willard Newton, thence westerly by land of said Newton and Stephen Richardson, to land of Barnet Bullock, thence southerly by land of said Bullock to land of Said Holman, about 155 rods, to a stake and stones, thence southwesterly by land of said Bullock, to the first mentioned corner, containing by estimation about 64 1/2 acres, more or less."
8/29/1855	Seth Holman	Seth N. Holman	551/230	$4,000.00	Deed: "…One undivided half of the following lots or tracts of land lying in the said Royalston, viz.: The home lot, so called… with one undivided half of all buildings and appurtenances thereto belonging. Said tract is supposed to be about 63 acres more or less. ..." Also conveyed one half of all timber interests in Royalston owned by Seth Holman, and one half of "all the machinery, fixtures and tools belonging to the grist mill, saw mill and furniture shop on said tracts of land", with all the priviledges. "...meaning to convey to my son, Seth N. Holman one undivided half of all the real estate and stock of lumber, unmanufactured and manufactured, with the stock of cattle and horses, farming tools, and other articles of personal property that I now own, excepting and reserving my household furniture and provisions."
4/15/1823	John Holman	Seth Holman	231/446	$9,000.00	Deed: "a certain tract of land situated near the center of the town of Royalston, containing by estimation three hundred and eighteen acres... bounded as follows: beginning at the northwest corner by the Road leading from Royalston Meeting House by Ebenezer Fry's, at a stake & stones by Fry's land, thence easterly and northerly on said Fry's land to a stake & stones by the land of Timothy Richardson, thence east & north about 100 rods to the brook running from Moore's Mills to Nichols Mills, thence southerly along said brook to a marked tree on the bank, thence east to a marked tree by land of Nathan B. Newton, thence southerly by land of said Newton to a corner near a brush fence, thence turning and running westerly by land of Isaac Prouty & Stephen Batcheller to a stake & stones by land of Joseph Estabrook, Esq., thence northwesterly on said Estabrook's land to a stake & stones, thence westerly by land of said Estabrook and John Eaton to the road running from Royalston Meeting House to N.B. Newton's, thence crossing said road and running west on the north side of said road to the bounds first mentioned, with all the priviledges and appurtenances there unto belonging."

In 1853, the furniture shop burned when George dropped an oil lamp on wood shavings in the basement (Bartlett 1907). The shop was quickly rebuilt around the original water wheel which survived the fire due to its sodden condition. The 25-foot diameter water wheel was located within the two and a half-story shop and water was drawn from Little Pond via a canal. An interesting aspect of this canal was that it was planked over and covered with soil that was farmed (Bartlett 1907). Water from this underground "tube" rose in a "penstock" in the shop to the height of the wheel where it spilled into buckets thus turning the wheel and powering the various pieces of wood-working equipment. While there are no records describing the grist and saw mill in the project area, this description of the furniture shop may be appropriate.

In 1854, Seth N. Holman is living in and described as the head of the former Sawyer house at the north end of the Common which had become a boarding house for those working in the furniture shop. Seth Holman was living at the mill site as records indicate he did not move into the Sawyer house until 1857, three years before his death (Bartlett 1907).

In 1855, Seth sold to his son, Seth N. for $4,000:

> "…One undivided half of the following lots or tracts of land lying in the said Royalston, viz.: The home lot, so called… with one undivided half of all buildings and appurtenances thereto belonging. Said tract is supposed to be about 63 acres more or less. ..." Also conveyed one half of all timber interests in Royalston owned by Seth Holman, and one half of "all the machinery, fixtures and tools belonging to the grist mill, saw mill and furniture shop on said tracts of land", with all the privileges. "...meaning to convey to my son, Seth N. Holman one undivided half of all the real estate and stock of lumber, unmanufactured and manufactured, with the stock of cattle and horses, farming tools, and other articles of personal property that I now own, excepting and reserving my household furniture and provisions." (Appendix D: Worcester Registry of Deeds, Book 551 Page 230).

In addition to the mill property, Holman conveyed to his son ownership of a number of wood lots in western and southern Royalston, as well as a lot in Fitzwilliam, New Hampshire (Appendix D: Worcester Registry of Deeds, Book 551 Page 230) and a seven-acre lot in the center of town called the Joseph Sawyer Place.

By 1857, a mill, identified as S. Holman is depicted on the western side of Lawrence Brook, south of the road (see Figure 4-5). A second "Holman" structure, presumed to be the residence, is located north of the road and west of the mill pond (this house still stands).

In 1858, the Holman's sold the mill property to Maynard Partridge for $4,000. The Holman's continued to work in the furniture business out of the shop in town. The 1860 Federal Census Non-Population Schedule lists Seth N. Holman as a cabinet maker, employing two people. Similarly, the census lists Maynard Partridge as producing cabinet stock, also employing two people. Maynard ran the business for ten years, producing lumber and turned chair stock, most of which went to chair factories in Gardner (Bartlett 1907). Maynard's two sons, Herman Maynard and John Milton worked in the turning room. This is the first mention of additional woodworking activities occurring at the site. A third son, Harlan Page married the daughter of a Bostonian, Trueworthy Seaver. Seaver visited the mill operation and was so impressed that in 1868, he bought the business from Maynard Partridge, running it for one year with Herman M. Partridge serving as manager (Bartlett 1907).

Seaver sold the business back to Maynard and John Milton Partridge who ran it as M. Partridge & Son until 1876 (Bartlett 1907). The 1870 Beers map depicts Maynard Partridge living in the former Holman house (see Figure 4-5). His son, John Milton Partridge is living in a house across the street, adjacent to

the mill. This house, which is not longer extant, is possibly the “long house” depicted in a 1907 postcard (see results of interviews below).

In 1876, the mill was converted to steam power (Bartlett 1907). In 1877, Maynard Partridge sold a half-interest to all property to J. Milton Partridge:

> "Containing by estimation 104 1/2 acres of land, with sawmill, two houses, barn and other buildings, with machinery and fixtures in said mill and all the privileges thereto belonging” (Appendix D: Worcester Registry of Deeds, Book 1007 Page 485).

He sold the other half interest to J. Milton Partridge in 1884, who continued to operate the mill until 1890. By 1894, Willard H. Newton, J. Milton Partridge’s son-in-law, is living in the Holman homestead and John Milton Partridge continues to live across the street (see Figure 4-7).

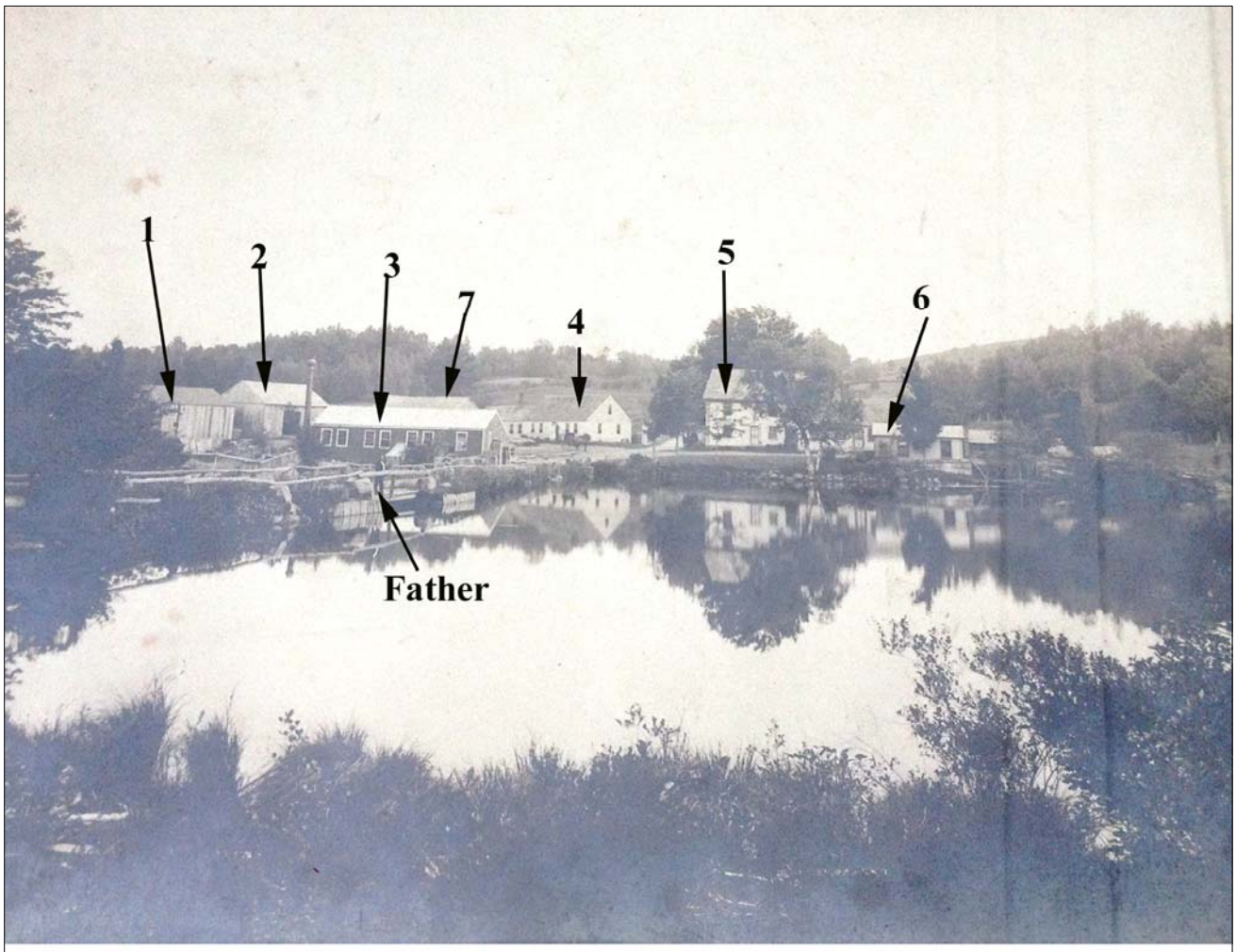
In 1905, John Milton Partridge sold the mill and mill privilege to Willard H. Newton and Willie Davis, Newton’s business partner (Appendix D: Worcester Registry of Deeds, Book 140, Page 1829). Newton and Davis replaced the old up and down sawmill with a circular blade. The original, heavy timbered mill burned down on July 3, 1905. Newton and Davis rebuilt that year, using in part a building from the next water privilege downstream owned by Millard W. White (Bartlett 1907). Newton and Davis soon added a number of portable saw mills (circular saws powered by a steam boiler and engine on frames that could be transported to wood lots). Waste material fed the boiler and sawn products were transported to the mill, greatly lowering costs (Bartlett 1907). Newton and Davis continued to operate the mill until 1925 when Newton died intestate, leaving the property to his son Leon. It is assumed that the mill was demolished shortly after Newton’s death and in 1935 all woodlots and other lands owned by Newton and Davis were seized and sold at auction to cover delinquent taxes.

In addition to the general histories and deeds, interviews with direct descendents of the last owners of the sawmill provided additional information. Historic images of the mill complex were limited to a photograph and two postcards (c. 1907) from private collections that document the twentieth century mill. The photograph and postcards are the same image showing the mill, mill pond and residences (Figure 4-8); the photograph shows details lost within the reproduced post card.

One of the two postcards is initialed LWN (Leon W. Newton) and is annotated with detailed information not ascertainable from the photo (see Figure 4-8). The image is taken from the north bank of the mill pond looking south; a man stands on the bridge above a gate structure that appears to be mid-point on the dam. The man is labeled “father” (Willard Newton) on the back of the post card. The mill is listed as the new mill with a note that the old mill burned July 3, 1906 (this differs from historical accounts indicating the mill burned on July 3, 1905). Visible in the photograph at the east end of the mill is a tall stack, probably for the steam boiler that powered the mill. Two horse barns are to the left of the mill. A team of horses stands to right of the mill building in front of a house that is listed in the postcard as the “Long” house, (According to Keith and Wayne Newton, direct descendents of Willard Newton, this house is the original house on the property, dating to circa. 1780). The building behind the mill is listed as the company wagon shed. Two other residences are identified on the west side of the road; one is listed as Thompson house.

The post card clearly shows that the there was an opening in the dam prior to the construction of the 1936 bridge. This opening housed the gate structure that regulated the water level in the mill pond. The photograph/postcard clearly shows what appear to be wooden “bumpers” facing the dam on both sides of the gate structure (affording protection to the masonry of the gate structure and the face of the dam).

The 1936 construction plans for the proposed bridge replacement were consulted to determine the extent of disturbance to the dam structure during the construction of the existing bridge. MassDOT records indicate there was an earlier timber stringer bridge on the site of the existing bridge and the 1936 construction plans note that the NE abutment was to be rebuilt and the SW abutment to be pointed. The 1936 construction plans also indicate that with the construction of the new bridge the elevation of the roadway profile was to be raised at least two feet.



Key (from back of post card of same view. Back of post card was signed LWN [Leon W. Newton]):

1. Is my horse barn.
2. Is Father's horse barn.
3. Is new mill (old mill burned July 3, 1906).
4. Is long house.
5. Is my room.
6. Is Thompson's house.
7. Is company wagon shed.

Father stands on the bridge. The team near the house is W.W. Davis. The one in the yard is myself.

Figure 4-8. C. 1907 photograph of Newton-Davis Mill, Royalston, Massachusetts (source: Keith Newton, Private Collection).

CHAPTER FIVE

RESULTS AND RECOMMENDATIONS

This chapter presents the results of research and fieldwork completed during the intensive (locational) archaeological survey for the Royalston Bridge Replacement project. Following the completion of research, the fieldwork aspect of the survey included a walkover inspection and subsurface testing. Subsurface testing focused on those sections of the project area considered to have high and moderate archaeological sensitivity.

Archaeological Site Expectations

Prehistoric settlement and land use patterns in the Millers River drainage are concentrated along tributary stream settings extending from elevated uplands and riverine wetlands zones. Known sites represent generally small, temporary campsites where resource procurement, processing, tool repair and maintenance, and other subsistence related activities were carried out by small groups of people. The types and locations of these sites suggest a seasonal orientation to the highly predictable and abundant natural resources that were available within the rich and diverse habitats of the upland and tributary stream zones. Potential pre-contact archaeological resources within the project area may include small camp sites along Lawrence Brook from the Early Archaic through Late Woodland. However, the potential for encountering intact pre-contact archaeological resources is compromised by post-contact activities associated with the former mill and dam and subsequent bridge and roadway.

A preliminary review of general histories, deeds, and census data identified a long-standing sawmill operation within the project area. Although construction of the bridge over Lawrence Brook may have resulted in disturbance to the former mill dam, a preliminary field review by MassDOT staff indicates that remnants of the former mill area are still extant within the project area. Visible portions of dry-laid stone walls associated with the mill foundation, dam, mill pond, and tail race will enable some mapping of the former complex. Though not visible, the headrace is assumed to be partially located in the project area and the survey will investigate how water entered the mill, either through an open race or a penstock. Other mill-related features of interest may include a possible wheel pit, water gates, and the dam itself. The mill related field testing will focus on the interface of the extant mill remains and the roadway approaches and bridge structure.

Field Investigations

Intensive (locational) Archaeological Survey

Field investigations for the intensive (locational) archaeological survey included a pedestrian survey of the project area, clearing of vegetation, and excavation of forty 50 x 50 centimeter (cm) shovel test pits (Table 5-1, Figure 5-1). Testing was conducted at the base of the slope of the dam in the northeast, northwest, southeast, and southwest quads, the proposed drainage swale, and the wetland replication area. Test pits were distributed among six (6) transects and one (1) modified sampling block that provided staggered and linear coverage within the proposed impact areas and temporary easements. Additional testing included one (1) judgmental test pit. Test pits terminated between 30 and 100 centimeters below surface (cmbs), exposing hydric soils in the majority of testing locations with rocky sloping soils to the north. The number of test pits excavated is less than the number proposed due mainly to the soil

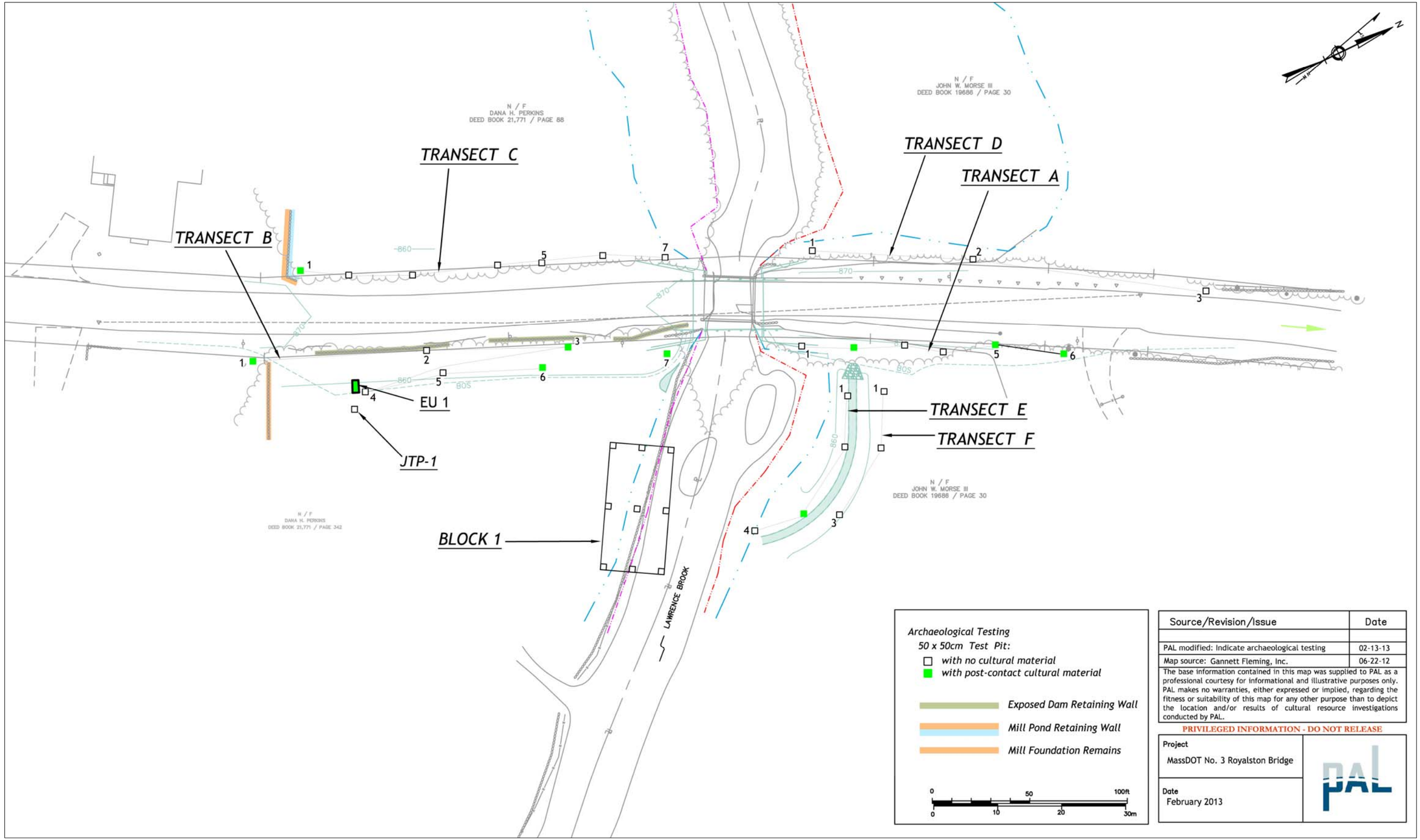


Figure 5-1. Location of subsurface testing, Royalston Bridge Replacement project.

conditions west (upstream) of the dam. Soil profiles in test pits placed west of the dam revealed hydric soils with no archaeological potential. Based on this finding the number of test units proposed on the west side of the dam was reduced in the field.

Table 5-1. Summary of subsurface testing, Royalston Bridge Replacement project area.

			# of Pits	
Location		**Size**	**Proposed**	**Excavated**
Northeast Quad		70 meters (m)	8	6
Southeast Quad		90 m	10	7
Northwest Quad		75 m	8	3
Southwest Quad		90 m	10	7
Drainage Swale		30 m	4	7
Wetland Replication Area		7 sq m	9	9
Reserve			12	9
TOTAL			61	49

Northeast Quadrant

Three transects were placed in the northeast quadrant (see Figure 5-1). Transect A (six test pits) was placed parallel to the dam. Transects E (four test pits) and F (three test pits) were placed within the proposed drainage swale. Soil profiles within Transect A revealed an Ao over a very dark brown (10YR2/2) silt and fine sand developing A Horizon to approximately 13 centimeters below surface (cmbs). Beneath the A Horizon were two flood deposits consisting of a dark yellow brown (10YR3/4) silt and medium sand and a mottled light yellow brown (2.5Y6/3) to gray brown (2.5Y5/2) medium sand to 77 cmbs. A third flood deposit of dark orange brown (2.5Y4/2) silt extended to 85 cmbs at the water table (Figure 5-2). Test pits in Transects E and F revealed similar results (see Figure 5-2).

Southeast Quadrant

Within the southeast quadrant Transect B was placed adjacent to and parallel with the dam. A modified sampling block (BK-1) was placed in the location of the proposed wetland replication area (see Figure 5-1). One additional test pit (JTP-1) was placed in the vicinity of a cobble and dirt anomaly (discussed in greater detail below). The nine test pits in BK-1 revealed an A Horizon of dark gray brown (10YR3/2) fine sand silt over a B_1 Horizon of yellow brown (10YR5/6) medium sand and silt with cobbles and a B_2 Horizon of yellow brown (10YR5/8) compacted silt and coarse sand with cobbles (see Figure 5-2). Test pits also revealed evidence of flooding. Seven test pits placed along Transect B revealed a variety of soil profiles consisting of natural soils buried under slope wash and fill deposit. Natural soils consisted of a buried A Horizon of dark reddish brown (5YR3/4) silt and fine sand over a B_1 Horizon of strong brown (7.5YR4/6) fine to coarse sand and silt with cobbles and rocks and a B_2 Horizon of yellow brown (10YR3/4) sand (see Figure 5-2). All test pits terminated in rock or standing water.

Northwest and Southwest Quadrants

The former mill pond was located on the west side of the dam in the southwest and northwest quads. Both quads are characterized as bog-like flood plains with evidence of water at or near the surface. Transect C (seven test pits)was placed in the southeast quad, starting one (1) meter from the former mill pond wall and extended to the north. Transect D (three test pits) was placed in the northwest quad starting at Lawrence Brook and extended up the slope 70 m (see Figure 5-1)

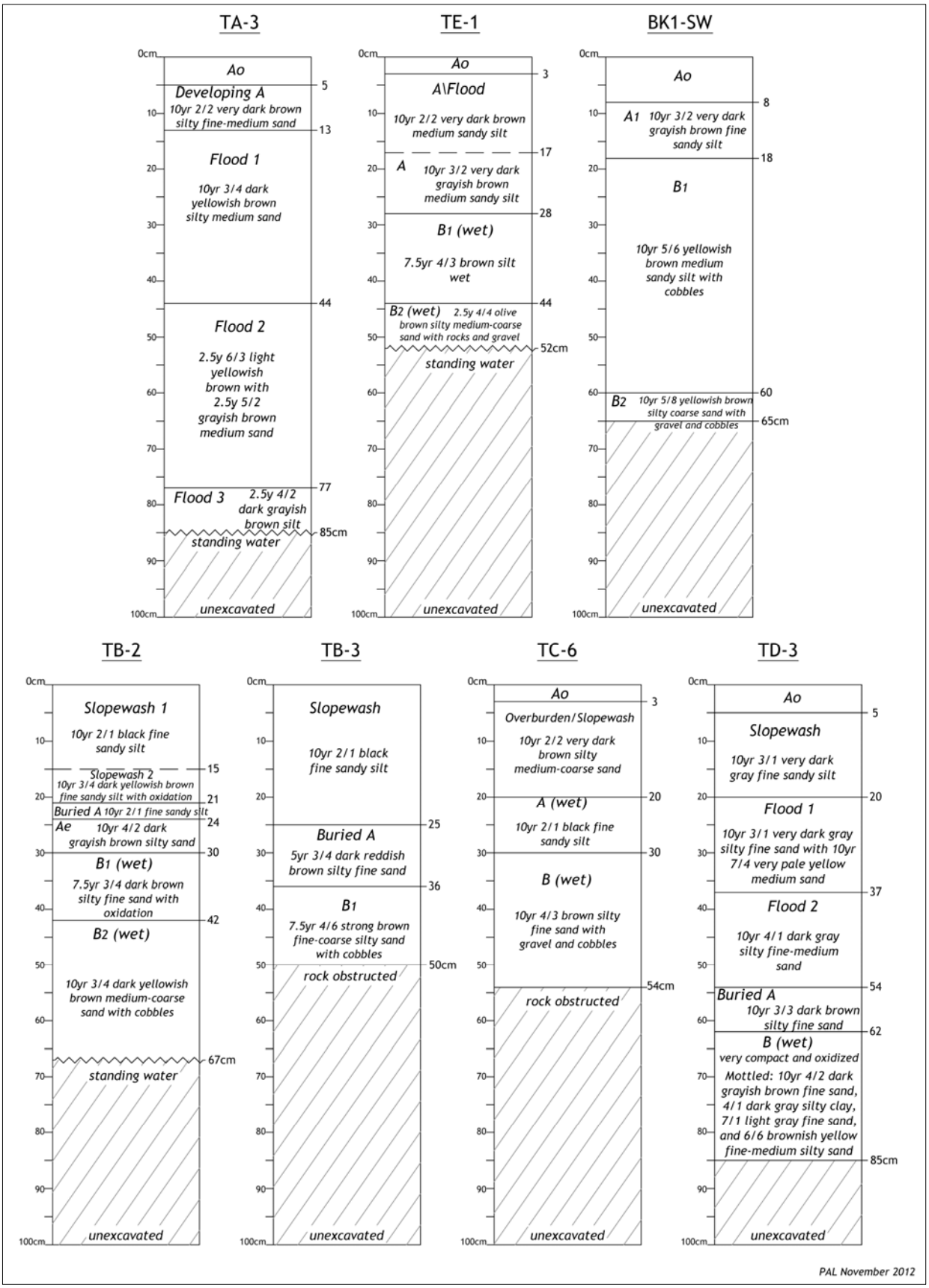


Figure 5-2. Representative soil profiles, Royalston Bridge Replacement project.

Subsurface testing west of the dam within the mill pond identified an overburden of very dark brown (10YR2/2) silt and medium sand, overlying a buried wetland A of black (10YR2/1) fine sandy silt and a wetland B_1 of oxidized brown (10YR4/3) silt and fine sand with gravel and cobbles. At the northwest quad of the project area slopewash was followed by three flood deposits; a dark brown(10YR3/1) buried A of silt and fine sand, and a mottled wetland B deposit characterized as a very compact, heavily oxidized dark gray brown (10YR4/2) mottled with dark gray (10YR4/1) silt clay, light gray (10YR7/1) fine sand and brownish yellow (10YR6/6) fine to medium silt sand (see Figure 5-2).

Site Examination

The site examination phase of the field investigations entailed the recordation of the structural mill remains with a Leica TCR405 Total Station. Two hundred and ten points were collected recording visible structural features and elevations (Figure 5-3, Back Pocket).

The mill complex is located east of the dam. The dam is approximately 40 feet wide and 350 feet (ft) in length and is covered by vegetation, slopewash, and disarticulated boulders and stone. One 40-foot (12.2 m) long section of exposed intact dam stonework consisting of dry-laid stone (see Figure 1-4b) is evident within the southeast quad located 27 ft (8.2 m) north of the 1907 sawmill.

The mill site occupies two terraces separated by a stone wall (relative elevation equals 0) which may be a retaining wall but is more likely part of the foundation of one and possibly both of the two mills that were located on the site. South of this stone wall on the upper terrace are extant dry-laid foundations of the two horse barns, the company wagon shed, and the “long” house which were identified in the c.1907 postcard (see Figure 4-12 and Figure 5-4). Immediately north of this wall is the wheel pit for the original mill. The pit is a large depression (approximately 25 long by 18 feet wide [8 meters by 6 meters]), the bottom is 10.75 feet (3 meters) below the top elevation of the stone wall. The wheel pit is delimited by stone which continues into the tail race which is stone-lined for a distance of 36 feet (12 meters). The tail race continues in a northeasterly direction, emptying back into Lawrence Brook (Figure 5-5). North of the wheel pit depression is a flat terrace that is 8.6 feet (3 meters) below the top elevation of the stone wall. A portion of this terrace is a cobbled stone surface (Feature 1) which is believed to be the floor of the original grist/saw mill (discussed further below). No evidence of the headrace was identified, but is suspected to be to the west and northwest of the waterwheel/turbine pit. The headrace would most likely be in the dam structure that is currently covered by an overburden of slopewash and road fill on both the east and west side of the dam.

In addition to the main structural elements of the mills and associated structures, several pieces of mill “equipment” were also identified. On the upper terrace were several line shaft pulleys (Figure 5-6). The line shaft was a means of transmitting power from a large central power source to machinery throughout the mill through a system of pulleys and gears via tensioning of leather belts (Figure 5-7). The central power source would have been a water wheel, turbine, or a steam engine. South of Lawrence Brook and east of the dam are several long sections of pipe (Figure 5-8) which appear to be very similar to the metal stack to the steam engine visible in the c. 1907 picture/postcard of the mill complex.

Feature 1 in the southeast quadrant in close proximity to the waterwheel pit and tailrace consists of a cobble floor with a foundation of dry-laid quarried stones and large stone slabs delimiting the corners and perimeter of the feature. Test pits TB-1, TB-4 and JTP-1 were placed east, west, and north of the Feature 1. Excavation Unit-1(EU-1), a 1 x 2 meter trench was placed on the west side of Feature 1, straddling the northwest wall, to investigate the possible function and extent of structure.

Figure 5-4. Existing shed sitting on foundation of "long house" depicted in c. 1907 photograph.

Excavation of EU-1 (Figure 5-9 and 5-10) commenced with clearing of vegetation and removal of surface material, an A_o/A_1 of very dark gray (10YR3/1) medium to coarse sand and silt with cobbles. Initially, these cobbles were interpreted as possible debris from a collapsed wall. At 10 cmbs the number of cobbles increased, comprising an extremely dense concentration designated $Fill_{1.}$ These cobbles were contained within a mottled matrix of very dark gray (10YR3/1) medium sand and silt, a light yellow (2.5Y6/4) very fine sand, and very dark brown (10YR2/2) fine sand and silt. Fill 1 extended to 50 cmbs. At 50 cmbs, a second fill layer of cobbles was exposed. $Fill_2$ was comprised of cobbles and cultural materials within a wet matrix of dark brown (10YR3/3) fine sand and silt mottled with a very dark yellow brown (10YR3/1) clay and silt and a very gray (10YR3/1) medium sand and silt. $Fill_2$ continued to approximately 80 cmbs exposing a sterile wet brown (10YR4/3) mottled with oxidized light olive brown (2.5Y5/4) clay and silt with cobbles.

Cultural Material

Testing yielded a total of 1,055 post-contact artifacts with the highest density from the unit and test pits placed within and around the mill complex (Appendix A). EU 1 and the surrounding test pits (TB-1, TB-4, and JTP-1) accounted for 93 percent of the artifacts recovered from the site (n=984). Table 5-2 provides a summary of cultural material by stratum. Subsurface investigations did not produce any pre-contact cultural material or evidence of pre-contact subsurface features.

The majority of cultural material was recovered from 0 to 30 cmbs in the A_o/A_1 outside of the feature and what is designated Fill1 within the feature. The majority of material is structural in nature: nails, both machine cut (n=265) and wire (n=195); flat glass (n=259); and 43 brick fragments. Isolated pieces of domestic materials were also recovered, including six pieces of household ceramics, 86 pieces of curved

View of trail race looking southeast toward mill site.

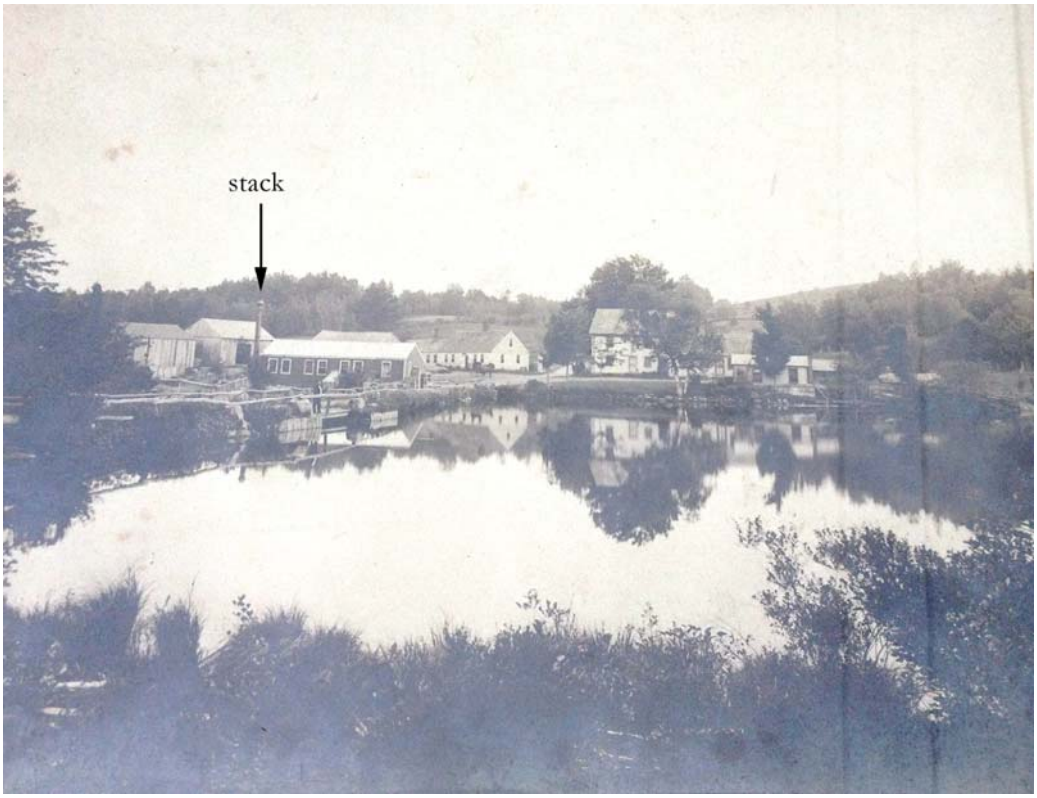
View of trail race emptying into Lawrence Brook looking northeast.

Figure 5-5. Remnant of the tailrace from the former mill.

Figure 5-6. Line shaft pulleys from former mill used to power machinery.

Figure 5-7. Photograph of line shaft pulley and belts (source: Bangor Daily News website 2012).

Sections of steam boiler stack.



1907 postcard depicting boiler stack.

Figure 5-8. Former stack pipe from steam boiler/engine depicted on c. 1907 photograph.

Table 5-2. Summary of cultural material by material and depth/stratum, Newton-Davis Mill Site, Royalston, MA.

	Strat	Surface	Overburden		Ao/A1			B1		Fill1					Fill2					
	Depth	0	0-10	10-20	0-10	10-20	20-30	30-40	40-50	0-10	10-20	20-30	30-40	40-50	40-50	50-60	60-70	70-80	Total	**Total by Material**
Material																				**#/%**
Ceramics																				**49/5**
Brick					5					12	13	3	3		6	1			43	
Ironstone		1									1								2	
Redware		1																	1	
Whiteware		1										1							2	
Yelloware		1																	1	
Glass																				**345/35.2**
Flat			4	2	46	12	2	3		58	49	52	15		5	9	2		259	
Curved					42	3		1		2	25	10		2			1		86	
Other												1							1	
Metal																				**581/59**
Iron																				
Nail (Wire)					136	9	2	1	4		32	3	3	4	1				195	
Nail (Machine)				3	125	13	3	2			92	17	7		3				265	
Nail (unid)					1	5					2								8	
Tools																				
File					1						1								2	
Blade											2								2	
Misc			1		28						17	1							47	
Unid.										9		10	5	1	4	2	2	1	34	
Lead					1						18		2						21	
Other					3							4							7	
Other				1	3						4								8	**8/0.8**
Total		4	5	6	391	42	7	7	4	81	256	102	35	7	19	12	5	1	984	
Total by Strat (#/%)		**4/0.4**	**11/1.1**		**440/44.7**			**11/1.1**		**481/48.9**					**37/3.8**					**984/100**

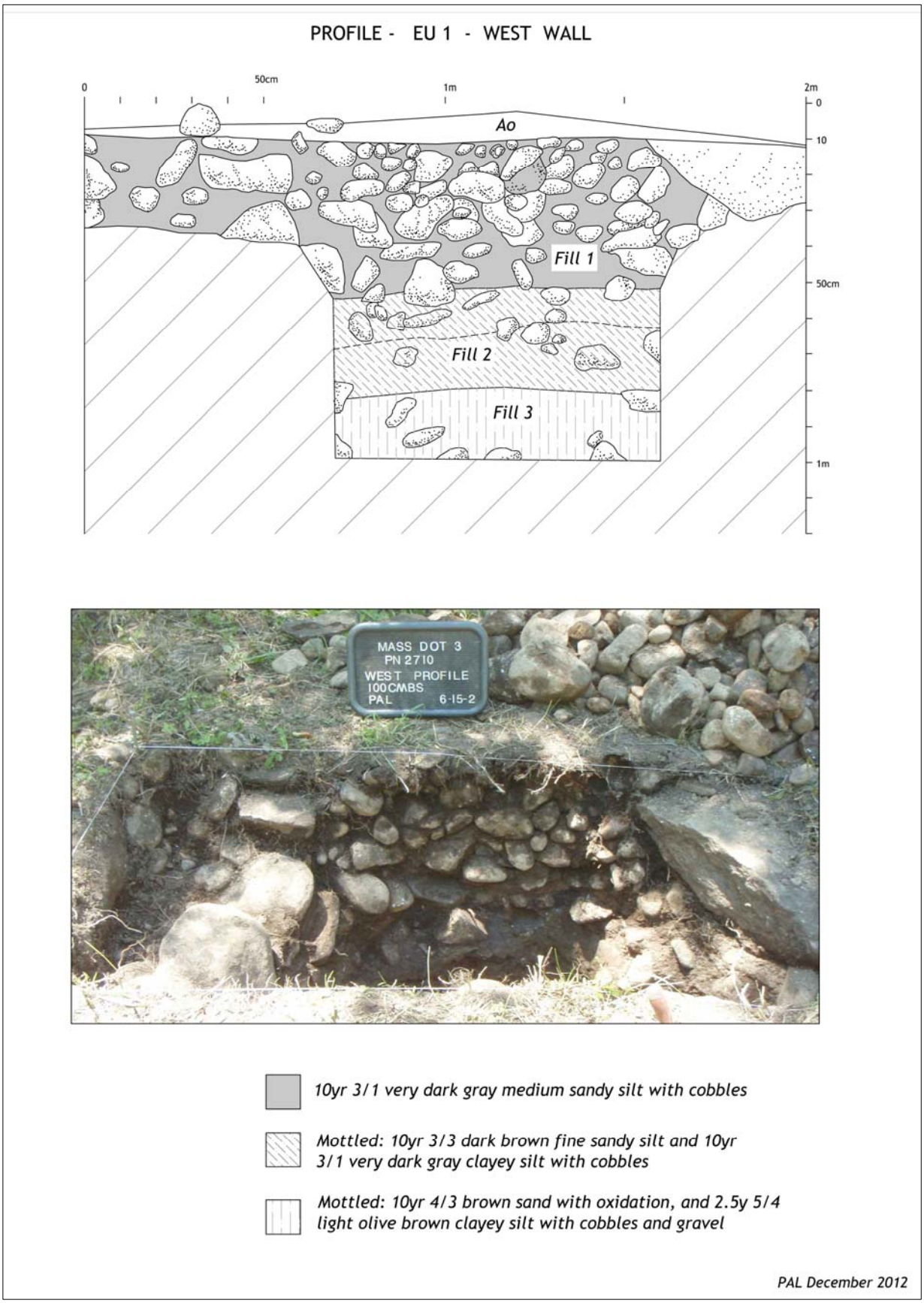


Figure 5-9. West wall profile of EU-1 depicting extent of cobble fill.

(bottle) glass, and a glass button. The datable ceramic materials, including a piece of Rockingham-Bennington, date from the 1820s to the present, all falling within the period the mill was in operation. Several pieces of industrial material were recovered, including two pieces of a metal file, and two shaping knife blades (Figure 5-11). These blades would have been part of a shaper, a tool similar to a router or planer used to carve out moldings, or shape pieces of wood into spindles or other chair parts.

Recovered cultural material also shows evidence of intense heat, possibly remnants from the 1905 fire that destroyed the original mill. Twenty pieces of glass collected from the first fill deposit showed evidence of melting. From the same fill deposit 20 fragments of melted lead hardware and spatter were collected.

Summary

A series of research questions were developed to guide the site examination investigations:

1) **What are the physical characteristics of the mill complex?** Visible elements of the mill (dam, tailrace, foundation walls) will be mapped and the resultant product, when combined with the historical record, may provide information about the location of other elements of the mill (mill race, water gates, wheel pit, structural foundations, etc.). Subsurface investigations within the area of proposed disturbance may expose some of these or other elements, providing additional data on the physical characteristics of the mill. Research and field data may also provide information on what infrastructure was used to power the mill (e.g. water wheels or turbines) and to process wood and grain; as well as whether there were upgrades/modifications to these systems over time in response to changing technology or other factors.

Through the combination of research and field investigations, a somewhat complete picture of the physical attributes of the mill site can be pieced together. The research indicates a continuous mill operation from the mid- 1800s to the early 1900s. During this time period there were two different mills.

Grist/Saw Mill – The combination grist mill and saw mill was fairly common during early settlement as grain meal and wood were two essential commodities. While there are no records describing this early mill one can assume that it was a multi-storied storied structure. The location of the wheel pit and tail race suggests that this mill was located on the lower terrace “beneath” the dam. From the records we know that it was of heavy timber construction and that the saw used in the mill was an up and down saw. This saw was most likely set into a heavy wooden frame and worked in an up and down motion through a crank on the end of the main water wheel shaft (Figure 5-12 and 5-13). Logs were clamped to a moveable frame or “carriage” that advanced the log toward the saw. The mill was powered by water conveyed from the impounded Lawrence Brook via a head race to a water wheel. The absence of a visible head race suggests that it may have passed through the dam and was subsequently covered by slope wash. A race through the dam would have drawn water from the bottom of the mill pond ensuring a constant supply of water, even during the winter months when the pond iced over. There is no record of the type of wheel used at the mill but the size of wheel pit suggests a large vertical wheel, either an overshot, undershot, or breast type wheel. Alternately, the mill could have been powered by a tub wheel, a smaller horizontal wheel with a vertical shaft. Power from this type of wheel would have been transferred to the various pieces of equipment through a series of gears.

From the records we know that as the mill changed hands the number and kinds of activities at the mill also changed. Eventually the mill no longer served as a grist mill but focused solely on the production of various parts for the manufacture of chairs, etc. by others. In 1875 the mill was converted to steam power.

a. 0-10 cmbs

b. 10-20 cmbs

c. 30-40 cmbs

Figure 5-10. Representative plan views of EU-1 as various depths depicting cobble fill.

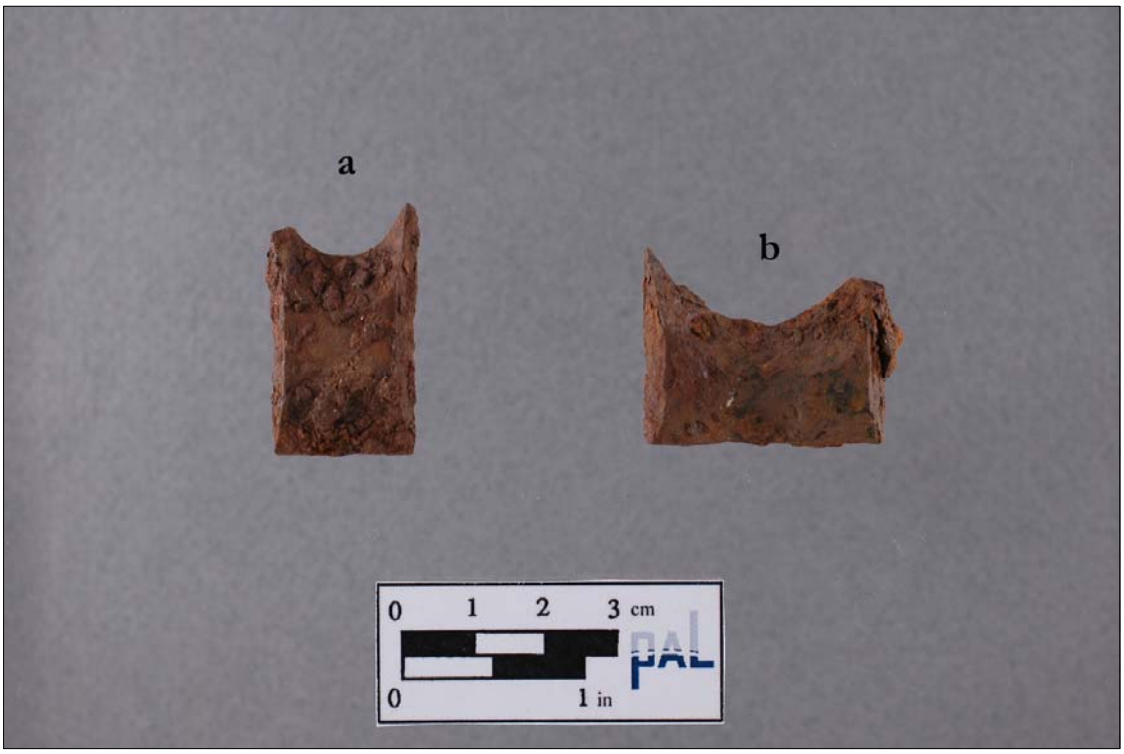


Figure 5-11. Knife blades from a shaper used to produce moldings or finished chair parts (A.) Iron Blade, EU-01, 10-20, Fill 1, B.) Iron Blade, EU-01, 10-20, Fill 1).

Saw Mill – In 1905, the original heavy timber mill burned. It was quickly replaced in part with a mill building from a neighboring complex. This second mill complex is what is depicted in the ca. 1907 postcard.

Given the proximity of Feature 1 to the tailrace and wheel pit, and the recovery of melted glass and lead, it could be argued that the "stone floor/platform" is the location of the original sawmill. The 50 centimeter thick accumulation of cobbles could have supported heavier machinery utilized in a sawmill. Alternatively, the cobble platform could have supported "turning" machines, as evidenced by the recovery of shaping knives. It is possible the new "1906" mill was built on the location of the previous mill and the lower cobble platform was the location of the turning mill that was added to the complex.

2) **What was the nature of the mill operation?**[1] Historical maps first identified the property as a grist/saw mill, then later as a saw/turning mill. Early saw and grist mills were often operated part-time during "off season" to supplement incomes derived from agricultural activities. Was this the case with this mill, or was it erected and operated as a full-time business? Or, did the operation change from part-time to full-time to meet the growing demand for lumber or other wood products in neighboring urban and manufacturing centers such as Gardner? What were the products of the turning mill and did they change over time?

[1] At the end of the references there is a list of web sites containing videos of early sawmill operations.

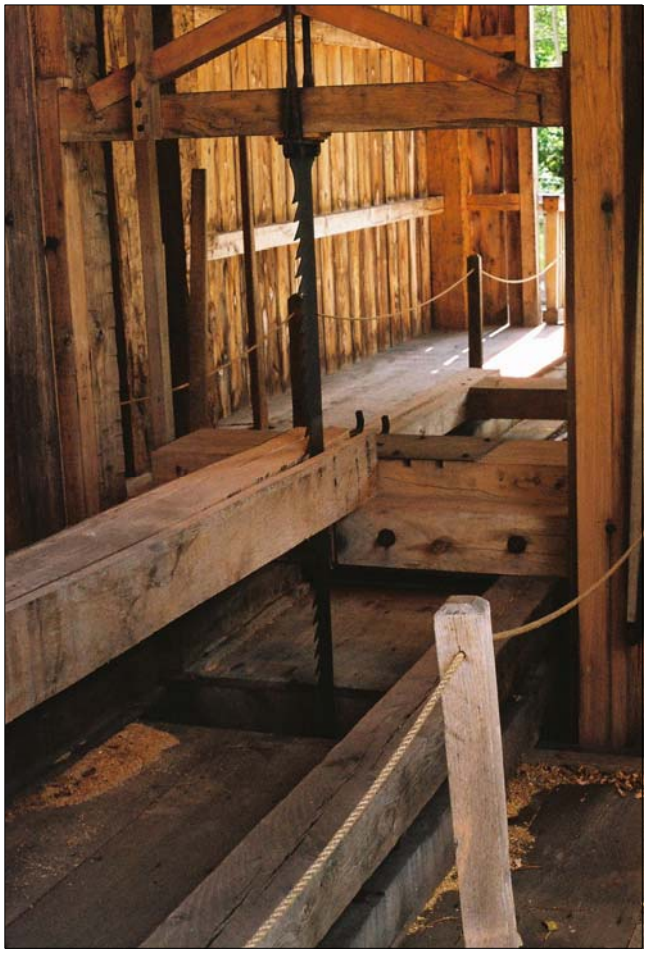


Figure 5-12. Photograph of an up and down saw (source: The Saw Mill at the Kirtland Historical Sites website 2012).

Figure 5-13. Photograph of waterwheel beneath sawmill structure (source: The Saw Mill at the Kirtland Historical Sites website 2012).

Research and field investigations have shed some light on the nature of the saw mill operation. Research would suggest that the mill was built as a part-time operation combining grist and sawmill operations to supplement income from other activities during the "off season". Eventually the grist mill operation was abandoned and the processing of wood became a full-time operation. Seth Holman, the original owner and mill operator lists himself as a "sawyer" in the 1850 census. The general histories always refer to the "business" when describing various operations and changes in ownership of the mill. Through the years and changes in ownership the mill was always a constant and its continued operation into the twentieth century suggests that it was a major commercial operation. Artifacts recovered during subsurface investigations included a number of knives that are believed to be from turning or shaping machinery to produce parts for chair manufactories in neighboring Gardner. Research reveals that the various mill owners were continually updating the mill and its machinery in response to new technologies: steam power in 1876; circular saw blade in 1905, portable saw mills. These improvements suggest that the mill owners were willing to invest capital to improve operations and maintain the mill as a successful business.

As the mill evolved from a part-time operation the type of product and the processes involved in producing these products would have evolved as well. It is conceivable that during the early years of the mill operation when Seth Holman was producing complete chairs the process was rather "low-tech", producing chairs for the local populace. After the initial sawing of lumber the chair parts may have been fashioned by hand using drawknives and spokeshaves (Figure 5-14). As the business shifted to mass producing of chair parts woodworking machinery would have been added. Evidence exists that these machines were powered by belts and pulleys connected through gears to the main power shaft attached to the water wheel. Two knife blades recovered from Feature 1 resemble spokeshaves used to shape wood, possibly chair spindles. At the "low-tech" end of the scale these knives would have been hand-held or mounted in hand planes. More likely these knives were mounted into a "chock" mounted on a spindle on a shaping machine (Figure 5-15). Revolving at a high rate of speed these knives would have quickly shaped raw pieces into "finished" parts.

3) **How did this mill contribute to the local lumber and wood products industry and operate within the larger economy of northern Worcester County?** General histories note that the lumber industry was an important component of the economy of Royalston – an assertion supported by the presence of seven saw mills on the 1870 map of Royalston (Beers 1870). The fairly lengthy operational life (circa 1850 to circa 1925) of the mill suggests that it was a successful business that may have adapted to meet changing market conditions. Who were the consumers of this mill's products and did they change over time? Were the products of the mill distributed locally? After 1850 and the arrival of the railroad in Royalston were raw materials and products shipped to more distant markets such as Boston to the east and Turners Falls to the west? The historical and archaeological record of the mill site, when set within the larger context of the regional economy, may lead to an improved understanding of the ways in which this and other such smaller milling operations evolved in response to external economic factors.

There is archaeological evidence to suggest that the mill operation did evolve as new technologies emerged. Structural elements of the mill complex include a waterwheel pit and a wheel/turbine pit, and pieces of metal piping that is assume to be parts of the exhaust stack for a steam boiler. Some of the recovered artifacts include what appear to be cutting knives that would have been used in machinery used to shape wood into final products for the manufacture of chairs. A review of the general histories indicates that the mill did in fact make and ship chair parts to neighboring Gardner.

Figure 5-14. Using drawknives and spoke shaves to fashion wood (source: Eightquarter website 2012).

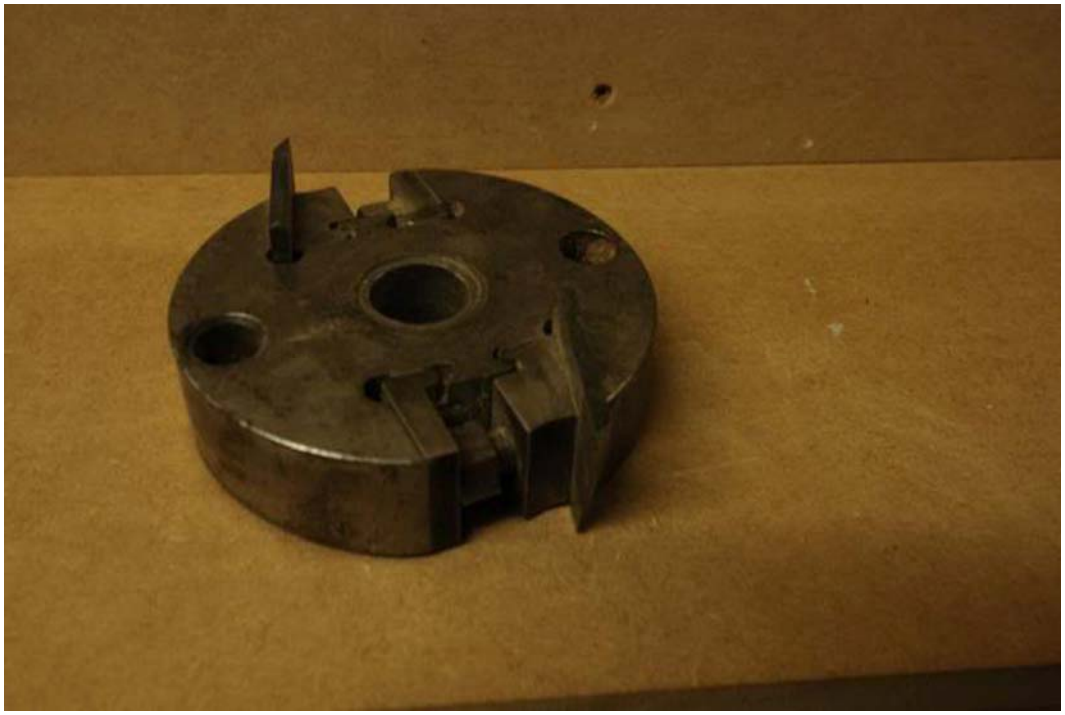


Figure 5-15. Photograph of a spindle machine and chock to hold shaping knives (source: WoodworkUK website 2012).

Recommendations

Based on preliminary research and the results of field investigations, the mill complex, designated the Newton-Davis Mill Site, is a significant archaeological resource and is potentially eligible for listing in the National Register of Historic Places, at the local level, under Criterion A, "that are associated with events that have made a significant contribution to the broad patterns of our history". The mill contributes to our understanding of the broad trends of the sawmilling industry in northern Worcester County and its association with the furniture making industry in nearby Gardner. It may also be eligible under Criterion C "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction". The Newton-Davis Mill site is associated with the Greek Revival house located to the west, contributing to the overall mid-nineteenth century rural industrial setting.

As currently designed the replacement of Royalston Bridge, R-12-004 will have an impact on the Newton-Davis Mill Site. However, with the completion of the current archaeological investigations, the information potential of the site, within the area of potential impact, has been exhausted. No new meaningful interpretive data can be expected through additional subsurface investigations. MassDOT is currently investigating design options to avoid impacting the site. PAL recommends that the visible remnants of the mill complex be avoided and protected during construction. In the event that deep excavation is undertaken in the southwest corner of the dam, monitoring is recommended to insure that elements of the site that have been identified are avoided and also in the event that remains of the headrace are exposed.

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Interviews

Peter Kraniack, Chair, Royalston Historic District Commission

Keith and Wayne Newton, descendents of former mill owners

Dana Perkins, current landowner.

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http://www.youtube.com/watch?v=vXFEf31xrUA

http://www.youtube.com/watch?v=6D_V5smCaOw

http://www.youtube.com/watch?v=E-_jRGhdrd0

http://www.youtube.com/watch?v=zug5NAEGZ8g

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APPENDIX A

CATALOG OF CULTURAL MATERIAL

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
3m @ 330d from Fea 1 (north corner) -0, Surface	Ironstone Flowing Colors	Ceramic Sherd	Rim	Brown	1850 Present	☐	1
	Redware	Ceramic Sherd	Fragment Imprinted/Marked	Black	1600 Present	☐	1
	Whiteware Shell-Edged Rim, Unscallop	Flatware	Rim	Blue	1865 1895	☐	1
	Yellowware Rockingham-Bennington	Ceramic Sherd	Body		1830 1900	☐	1
EU-01 0-10, Ao	Coarse Earthenware	Brick	Fragment	Red		☐	5
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	11
	Glass	Curved Glass	Fragment Melted	Aqua Tint, White		☐	10
	Glass	Curved Glass	Fragment	Aqua Tint		☐	4
	Iron	Nail Wire Nail Roofing nail	Complete		1890 Present	☐	1
	Iron	Nail Wire Nail	Fragment		1890 Present	☐	1
	Iron	Bolt/Nut Bolt	Mostly Complete			☐	1
	Iron	Nail Unidentified Nail	Fragment			☐	1
	Iron	Screw	Mostly Complete			☐	1
	Iron	Unidentified	Fragment			☐	3
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	11
	Iron	Nail Wire Nail	Complete		1890 Present	☐	22
	Iron	Spike	Mostly Complete			☐	2
	Iron	Nail Machine Cut Nail	Fragment		1790 1900	☐	1
	Lead Alloy	Unidentified	Complete			☐	1
	Plaster/Mortar	Mortar	Fragment			☐	2
EU-01 10-20, Fill 1	Coarse Earthenware	Brick Fire Brick	Fragment	Brown		☐	1
	Coarse Earthenware	Brick	Fragment	Red		☐	2
	Glass	Curved Glass	Fragment Melted	Colorless		☐	7
	Glass	Flat Glass	Fragment	Aqua Tint		☐	4

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
EU-01 10-20, Fill 1	Glass	Curved Glass	Fragment	Clear		☐	12
	Iron	Miscellaneous Hardware	Mostly Complete			☐	1
	Iron	Miscellaneous Hardware	Fragment			☐	1
	Iron	Unidentified	Fragment			☐	1
	Iron	Blade	Complete			☐	1
	Iron	Bolt/Nut Bolt	Mostly Complete			☐	1
	Iron	Screw	Complete			☐	2
	Iron	Spike	Mostly Complete			☐	1
	Iron	Nail Wire Nail	Mostly Complete		1890 Present	☐	32
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	92
	Iron	Miscellaneous Hardware Pipe	Complete			☐	1
	Iron	File Metal File	Mostly Complete			☐	1
	Iron	Blade	Complete			☐	1
	Lead Alloy	Miscellaneous Hardware	Mostly Complete Heat Altered			☐	1
	Lead Alloy	Spatter	Fragment			☐	17
	Wood	Wood	Fragment			☐	1
	Wood	Wood	Fragment			☐	2
EU-01 20-30, Fill 1	Brass	Unidentified	Fragment			☐	1
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	4
	Glass	Curved Glass	Fragment Melted	Clear		☐	3
	Glass	Curved Glass	Fragment	Clear		☐	1
	Glass	Button Prosser-Pressed	Complete	White	1840 Present	☐	1
	Iron	Screw	Complete			☐	1
	Iron	Nail Machine Cut Nail	Complete		1790 1900	☐	3
	Iron	Unidentified	Fragment			☐	5

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
EU-01 20-30, Fill 1	Iron	Nail Wire Nail	Complete		1890 Present	☐	2
	Unidentified Metal	Spatter	Fragment	Silver		☐	3
	Whiteware	Ceramic Sherd	Fragment		1820 Present	☐	1
EU-01 30-40, Fill 1	Coarse Earthenware	Brick	Fragment	Red		☐	3
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	2
	Iron	Unidentified	Fragment			☐	2
	Lead Alloy	Spatter	Fragment			☐	2
EU-01 40-50, Fill 2	Coarse Earthenware	Brick	Fragment	Red		☐	6
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	5
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	3
	Iron	Nail Wire Nail	Fragment		1890 Present	☐	1
	Iron	Unidentified	Fragment			☐	2
	Unidentified Metal	Spatter	Fragment	Silver		☐	2
EU-01 50-60, Fill 2	Coarse Earthenware	Brick	Fragment	Red		☐	1
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	9
	Iron	Unidentified	Fragment			☐	2
EU-01 60-70, Fill 2	Glass	Curved Glass	Fragment	Clear		☐	1
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	2
	Iron	Unidentified	Fragment			☐	2
EU-01 70-80, Fill 2	Iron	Unidentified	Fragment			☐	1
JTP-01 0-10, Ao	Glass	Curved Glass	Fragment	Green		☐	4
	Glass	Flat Glass Window Glass	Fragment	Clear		☐	16
	Glass	Curved Glass	Fragment	Frosted		☐	1
	Iron	Washer	Fragment			☐	2
	Iron	Screw	Complete			☐	4

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
JTP-01 0-10, Ao	Iron	Unidentified	Fragment			☐	1
	Iron	Nail Wire Nail Roofing nail	Complete		1890 Present	☐	21
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	48
	Iron	Nail Wire Nail	Mostly Complete		1890 Present	☐	63
JTP-01 10-20, A1	Glass	Curved Glass	Fragment	Green		☐	3
	Glass	Flat Glass Window Glass	Fragment	Clear		☐	12
	Iron	Nail Wire Nail	Mostly Complete		1890 Present	☐	9
	Iron	Nail Unidentified Nail	Fragment			☐	5
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	13
JTP-01 20-30, A1	Glass	Flat Glass Window Glass	Fragment	Clear		☐	2
	Iron	Nail Machine Cut Nail	Fragment		1790 1900	☐	3
	Iron	Nail Wire Nail Roofing nail	Complete		1890 Present	☐	1
	Iron	Nail Wire Nail	Complete		1890 Present	☐	1
JTP-01 30-40, B1	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	3
	Glass	Curved Glass	Fragment	Clear		☐	1
	Iron	Nail Wire Nail	Complete		1890 Present	☐	1
	Iron	Nail Machine Cut Nail	Fragment		1790 1900	☐	2
JTP-01 40-50, B1	Iron	Nail Wire Nail	Mostly Complete		1890 Present	☐	4
SW Corner of Fea 1 0-10, Developing A	Brass	Miscellaneous Hardware	Fragment			☐	1
	Brass	Washer	Mostly Complete			☐	1
	Copper Alloy	Miscellaneous Hardware	Fragment			☐	1
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	19
	Glass	Curved Glass	Fragment Melted	Clear		☐	9
	Glass	Curved Glass	Fragment	Clear		☐	5
	Glass	Bottle/Jar	Fragment	Dk Olive		☐	2

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
SW Corner of Fea 1 0-10, Developing A	Glass	Curved Glass	Fragment Melted	White		☐	7
	Iron	Nail Wire Nail	Mostly Complete		1890 Present	☐	25
	Iron	Staple	Fragment			☐	1
	Iron	Miscellaneous Hardware	Complete			☐	1
	Iron	Nail Wire Nail Roofing nail	Complete		1890 Present	☐	3
	Iron	Screw	Mostly Complete			☐	1
	Iron	Unidentified	Fragment			☐	6
	Iron	Unidentified	Fragment			☐	1
	Iron	File Metal File	Complete			☐	1
	Iron	Spike	Complete			☐	1
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	65
	Iron	Machine Part	Fragment			☐	3
	Slate	Pencil Slate pencil	Fragment	Dk Gray		☐	1
TA-02 0-10, Developing A	Iron	Unidentified	Fragment			☐	2
	Iron	Hoe	Mostly Complete			☐	1
TA-05 20-30, Flood 2	Copper Alloy	Bracket	Mostly Complete			☐	1
	Hard Paste	Ceramic Sherd	Fragment	Brown	1700 Present	☐	1
	Iron	Unidentified	Fragment			☐	1
TA-05 30-40, Flood 2	Copper Alloy	Bracket	Mostly Complete			☐	1
	Iron	Unidentified	Fragment			☐	7
	Iron	Unidentified	Fragment			☐	2
	Whiteware	Ceramic Sherd	Fragment		1820 Present	☐	1
TA-05 40-50, Flood 2	Iron	Unidentified	Fragment			☐	4
	Tar	Tar	Fragment			☐	1
	Whiteware	Ceramic Sherd	Fragment		1820 Present	☐	2

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
TA-06 0-10, Slopewash 1	Glass	Bottle/Jar	Body	Brown		☐	1
	Iron	Sheet	Fragment			☐	1
	Iron	Can	Fragment			☐	1
	Iron	Can Tin Can	Mostly Complete			☐	1
TA-06 10-20, Slopewash 1	Glass	Bottle/Jar	Base	Brown		☐	1
	Iron	Wire	Fragment			☐	2
TB-01 0-10, Overburden	Glass	Flat Glass Window Glass	Fragment	Clear		☐	4
	Iron	Screw	Complete			☐	1
TB-01 10-20, Overburden	Charcoal	Charcoal	Fragment			☐	1
	Glass	Flat Glass Window Glass	Fragment	Clear		☐	2
	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	3
TB-01 20-30, Fill 1	Iron	Nail Machine Cut Nail	Mostly Complete		1790 1900	☐	14
	Iron	Nail Wire Nail	Complete		1890 Present	☐	1
TB-01 30-40, Fill 1	Iron	Unidentified	Fragment	Dk Gray		☐	1
	Iron	Nail Machine Cut Nail	Fragment		1790 1900	☐	5
	Iron	Nail Wire Nail	Complete		1890 Present	☐	3
	Iron	Unidentified	Fragment			☐	2
TB-01 40-50, Fill 1	Glass	Curved Glass	Fragment Melted	Clear		☐	2
	Iron	Nail Wire Nail	Complete		1890 Present	☐	4
	Iron	Unidentified	Fragment			☐	1
TB-03 0-10, Slopewash	Whiteware	Ceramic Sherd	Fragment		1820 Present	☐	2
TB-04 0-10, Fill 1	Coarse Earthenware	Brick	Fragment	Red		☐	12
	Glass	Flat Glass	Fragment	Green		☐	1
	Glass	Flat Glass Window Glass	Fragment	Frosted		☐	9
	Glass	Curved Glass	Fragment Melted	Clear		☐	1

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes		Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam								
TB-04 0-10, Fill 1	Glass	Flat Glass Window Glass	Fragment		Clear		☐	48
	Glass	Curved Glass	Rim		Frosted		☐	1
	Iron	Unidentified	Fragment				☐	9
TB-04 10-20, Fill 1	Charcoal	Charcoal	Fragment				☐	1
	Coarse Earthenware	Brick	Fragment	Burned	Black, Red		☐	2
	Coarse Earthenware	Brick	Fragment		Red		☐	8
	Glass	Flat Glass Window Glass	Fragment		Clear		☐	42
	Glass	Curved Glass	Fragment		Clear		☐	5
	Glass	Flat Glass	Fragment		Frosted		☐	3
	Glass	Curved Glass	Fragment	Melted	Clear		☐	1
	Iron	Unidentified	Fragment				☐	9
	Iron	Nail Unidentified Nail	Mostly Complete				☐	2
	Ironstone Molded Rim	Holloware	Rim			1850 Present	☐	1
TB-04 20-30, Fill 1	Coarse Earthenware	Brick	Fragment		Red		☐	3
	Glass	Curved Glass	Fragment		Frosted		☐	2
	Glass	Flat Glass	Fragment		Frosted		☐	3
	Glass	Curved Glass	Fragment	Solarized	Clear, Lavender	1880 1920	☐	1
	Glass	Curved Glass	Fragment		Clear		☐	2
	Glass	Curved Glass	Fragment		Green		☐	1
	Glass	Flat Glass Window Glass	Fragment		Aqua Tint		☐	45
	Iron	Unidentified	Fragment				☐	5
TB-04 30-40, Fill 1	Glass	Flat Glass Window Glass	Fragment		Aqua Tint		☐	13
	Glass	Flat Glass	Fragment		Frosted		☐	1
	Glass	Flat Glass	Fragment		Green		☐	1
TB-06 0-10, A	Glass	Flat Glass Window Glass	Fragment		Clear		☐	1

Appendix A. Catalog of Cultural Materials, MassDOT No. 03 Royalston Bridge, Intensive/Site Exam.

Provenience	Material	Object	Attributes	Color(s)	Manufacture Date	Makers Mark	Count
Royalston Dam							
TB-07 0-10, Buried A	Glass	Insulator	Mostly Complete	Clear	1922 1938?	☑	9
	Whiteware Transfer Print Brown	Flatware Saucer	Rim/Base	Brown	1828 Present	☐	3
TC-01 0-10, Developing A/Overburden	Aluminum	Container	Mostly Complete Imprinted/Marked			☐	1
	Brass	Bullet Shotgun Casing	Fragment		1850+	☑	1
	Glass	Curved Glass	Fragment	Aqua		☐	1
	Whiteware	Ceramic Sherd	Fragment		1820 Present	☐	1
TC-01 10-20, Developing A/Overburden	Glass	Bottle/Jar	Fragment	Aqua Tint		☐	9
	Redware	Ceramic Sherd	Fragment		1600 Present	☐	2
TC-01 20-30, developing A\Overburden	Glass	Miscellaneous Household	Fragment	Clear		☐	1
	Glass	Bottle/Jar	Fragment	Aqua Tint		☐	2
	Glass	Flat Glass Window Glass	Fragment	Aqua Tint		☐	1
TC-01 30-40, Wetland A	Glass	Bottle/Jar	Fragment	Aqua Tint		☐	1
TE-03 0-10, A	Glass	Lightbulb	Fragment	Frosted	1925 Present	☐	5
						Total:	**1055**

APPENDIX B

PROJECT CORRESPONDENCE

Royalston Historic District Commission
P.O. Box 125
Royalston, Massachusetts, 01368

Royalston, February 26, 2012

Mr. Thomas Broderick, PE
Acting Chief Engineer
Mass DOT, Highway Division
10 Park Plaza
Boston MA 02116-3973

Attn: Jeffrey Shrimpton

RE: Bridge # R-12-004, BIN 17L

Dear Mr. Broderick:

The Royalston Historic District Commission has reviewed the Jan 27, 2012 letter from Gannett Fleming about the reconstruction of the bridge carrying North East Fitzwilliam Road over the Lawrence Brook (section 106 process).

As shown on the attached 1906 picture (from the book "Reflections on Royalston", by H.C. Bartlett), the road (at left) is running on the dam of the former Newton & Davis Mill-Pond, which was established quite early in the history of the town. The main residence at the back of the picture is still standing. The brook outlet is on the East side (at left), away from the buildings. Thus the work will only affect the top of the dam and we do not expect it to have any negative impact on historical aspects of Royalston. However we request that the work be planned to minimize the impact on the course and the aspect of the wild brook in this historic landscape (the scope mentions only work to the superstructure but not to the pilings on either side of the brook, in which case this should not be an issue).

The existing bridge indeed needs work and we are grateful that the Massachusetts Department of Transportation is starting this project.

Sincerely,

Pierre A. Humblet
RHDC secretary

as the latest owners, and he says the old mill fell down January 3, 1911.

While the location of this first grist-mill and saw-mill was far from being a central one, it proved to be the nucleus of a greater variety of industrial activity than any other point in the town, outside of South Royalston. The Memorial says that Benjamin May, a clothier, had a mill, first at the base of the great falls, but which he soon moved up the stream to a point below the saw-mill; here, the Memorial tells us, "he scoured and fulled the home-mades of the people." Mr. Caswell, or his printer, says that "he secured and made the home-mades of the people." Probably May made no clothes. The compilers of the Memorial knew their words and had them properly printed. Scouring and fulling is a process of cleansing, shrinking and thickening cloth, by moisture, heat and pressure; and fullers-earth and fullers-soap have been used in the process. May cleansed and slicked up the home-made cloth, but he was not a tailor. His business passed into the hands of Joel Nourse, who built another dam above the saw-mill; built a blacksmith-shop, in which he had a trip-hammer and a nail-cutting machine; and he got control of an oil-mill, the clothier's mill, and other business of the locality. Benjamin Bragg later became proprietor of the privilege, continuing the clothier's business, and adding machinery for wool-carding; this, too, was probably utilized by the people, who otherwise had carded their wool by hand, preparatory to spinning it into yarn. Later Mr. Bragg put in spinning and weaving machinery and manufactured satinet cloths complete. He was burned out in 1850, and did not resume business.

Sullivan Raymond & Sons manufactured pails and tubs for many years, after Bragg was burned out, utilizing the power from the dam built by Nourse. Amos Doane built a shop below the saw-mill, probably utilizing the power at the point of May's second dam. Mr. Doane made doors, sash and blinds; and it is probable that there are many houses in Royalston, Athol and vicinity, trimmed with his product, and bearing proof of the thoroughness of his work.

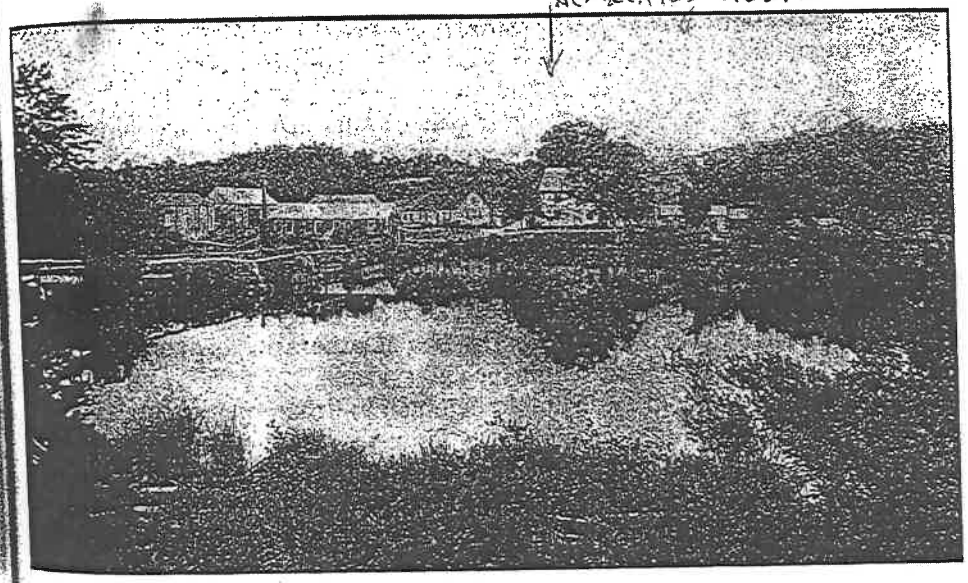
It is probable that the second grist-mill was built by Bezaleal Barton, on the Lawrence, about a mile and a half north-easterly from the Common (Sq. 16). The proprietor died in camp in 1775, indicating the building of the mill some years earlier. William Nichols, brother of Henry Nichols, previously mentioned in connection with the first mill, bought this Barton mill and farm connected, which later became the Col. Willard Newton place. It is probable that the grist-mill at this point did not remain in service as long as some of the others. But the saw-mill which was established was kept up; among the proprietors have been Moore, Bosworth and Mendall Pike.

The Holman saw-mill and grist-mill, on the Lawrence, about a mile north-easterly from the Common (Square 25), was probably established quite early in the history of the town. There are notes which indicate that perhaps the Newtons had something to do with its beginning. Nathan Brigham Newton, according to the Memorial, was first located

"on the west bank of the Lawrence," near the mill-site, and later removed to the top of the hill on the easterly side of the Lawrence. There is a tradition of disagreement between the families over the raising of the dam, such as would naturally come from the flooding of Newton's land by Holman's pond, after the river became the dividing line between the Newtons and the Holmans, with the Holmans in possession of the mills.

Maynard Partridge bought the mills and the farm con-

Remaining house



NEWTON & DAVIS MILL-POND, MILL AND RESIDENCES, 1906.

nected in the spring of 1858, and carried on the business for about ten years, producing, in addition to lumber, turned chair stock, which was mostly sent to Gardner chair factories. His sons, Herman Maynard and John Milton, and others were employed in the turning room. Maynard Partridge had a younger son, Harlan Page, who married a daughter of Trueworthy Seaver of Boston. Mr. Seaver visited the place, and was so well pleased with it that he bought it in 1868, and carried on the business for something more than a year, with Herman M. Partridge as manager. Then he sold

Lawrence Brook & North East Fitzwilliam Rd.
Royalston MA.
NE to SW view

Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Richard A. Davey, Secretary & CEO
Frank DePaola, Administrator

massDOT
Massachusetts Department of Transportation
Highway Division

May 1, 2012

RE: ROYALSTON/Northeast Fitzwilliam Road Bridge (R-12-004) Project (604175)
Intensive Archaeological Survey/Site Examination Permit Application/Proposal

Ms. Brona Simon
State Archaeologist
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Dear Ms. Simon:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston. Scheduled for federal funding, the project requires historic and archaeological review under Section 106 of the National Historic Preservation Act of 1966 as amended.

The existing bridge, built in 1936, is a single-span steel stringer structure supported on earlier mortared fieldstone abutments with reinforced concrete bridge seats. The bridge is a deteriorated example of a common structural type which possesses no unusual engineering or architectural characteristics. The existing bridge will be completely replaced on the same alignment with a slightly wider single-span pre-cast reinforced concrete arch structure supported on reinforced concrete spread footings. In addition to the bridge work, the project will also include the following construction activities: reconstruction (with some minor widening) of the roadway approaches extending approximately 250 feet from each end of the bridge; replacement of the existing guardrails; construction of a drainage swale north of the stream and east of the roadway; construction of a small wetland replacement area south of the stream and east of the roadway; installation of rip-rap around the new abutments for scour protection; slope work and landscaping along the roadway embankments; and placement of hay bales and silt fencing at the base of the embankments for erosion control and wetland protection.

A site visit by MassDOT Cultural Resources Unit (CRU) staff disclosed the area surrounding the bridge to be a mixture of open field, wetland and woodland. The site visit also revealed a number of visible mill-related structural remains and features within and immediately adjacent to the project area. These include dry-laid stone walls associated with a mill building at the southeasterly end of the project area, a mill dam beneath the roadway approaches, an open tail race/ditch running easterly from the southerly roadway approach and the edge of a former mill pond (now wooded wetland) running westerly from the southerly roadway approach. Preliminary research indicates that these remains are associated with a mid-19th century saw/grist mill that once stood at this location. Approximately 350 feet southwest of the bridge stands an un-

Ten Park Plaza, Suite 4260, Boston, MA 02116
www.mass.gov/massdot

inventoried Greek Revival style wooden dwelling whose earliest occupation (as interpreted by CRU staff from their assessment of the building's location and architectural style and review of historic maps, a town history and census records) appears to be contemporaneous with the operation of the former mill complex. In the opinion of CRU staff, the project warrants a combination of supplementary research, archaeological field testing, mapping and photo-documentation to further assess the integrity and nature of these visible mill features/remains and to investigate any additional features that may be associated with the mill complex. Of particular interest is how the water entered the mill – either via a penstock or through an open race. Further research and survey may yield evidence for a possible wheel pit and gate, and provide information on the structure of the dam itself (acknowledging the dam has been breached and otherwise altered by bridge and roadway construction).

Although a review of the MHC archaeological base maps disclosed no recorded pre-contact sites in the immediate vicinity of the project area, CRU staff believes portions of the project area, based on favorable environmental attributes, may also contain sensitivity for the discovery of pre-contact Native American sites. Since visible remains of potential historical significance have been identified and partially researched within and adjacent to the project area, we recommend that a combined intensive survey/site examination be undertaken to further evaluate and document the mid-19th century mill complex and to identify and assess any potential pre-contact Native American sites. We have engaged our cultural resources consultant, The Public Archaeology Laboratory, Inc. (PAL), to conduct the recommended survey.

Please find enclosed a permit application/proposal prepared by PAL in consultation with MassDOT's CRU staff, which includes relevant environmental and historic contexts of the project area, a work plan detailing the number, size and layout of test units (relative to project impacts), a schedule and a list of key personnel. If the application/proposal appears satisfactory, we ask that a permit be issued for the proposed survey. If there are any questions, please feel free to call me (at 617-973-7493).

Sincerely,

John E Rempelakis

John E. Rempelakis
Archaeological Resources Supervisor
Environmental Services

att:
PAL intensive survey/site examination permit application/proposal package

xcs:
D. Cox, PAL, w/out att.
D. Santiago, FHWA, w/out att.
J. Dewire, MassDOT, w/out att.
J. Harwood, MassDOT, w/out att.
K. Jergensen, MassDOT, w/out att.

950 CMR: DEPARTMENT OF THE STATE SECRETARY

APPENDIX B
COMMONWEALTH OF MASSACHUSETTS

SECRETARY OF STATE: MASSACHUSETTS HISTORICAL COMMISSION

PERMIT APPLICATION: ARCHAEOLOGICAL FIELD INVESTIGATION

A. General Information

Pursuant to Section 27(c) of Chapter 9 of the General Laws and according to the regulations outlined in 950 CMR 70.00, a permit to conduct a field investigation is hereby requested.

1. Name(s): A. Peter Mair, II

2. Institution: The Public Archaeology Laboratory, Inc.

   Address: 210 Lonsdale Avenue
   Pawtucket, Rhode Island 02860

3. Project Location: Bridge R-12-004
   see attached proposal

4. Town(s): Royalston

5. Attach a copy of a USGS quadrangle with the project area clearly marked.

   see attached

6. Property Owner(s): Town of Royalston

7. The applicant affirms that the owner has been notified and has agreed that the applicant may perform the proposed field investigation.

8. The proposed field investigation is for a(n):

   a. Reconnaissance Survey
   b. Intensive Survey
   c. Site Examination
   d. Data Recovery

B. Professional Qualifications

1. Attach a personnel chart and project schedule as described in 950 CMR 70.11 (b).

a. Personnel

Principal Investigator(s):	A Peter Mair, II
Project Archaeologist(s):	Erin Timms
Field Crew:	Melissa Wales

b. Schedule

Fieldwork:	May 2012
Laboratory:	May 2012
Report:	July 2012

2. Include copies of curriculum vitae of key personnel (unless already on file with the State Archaeologist).

C. Research Design

1. Attach a narrative description of the proposed Research Design according to the requirements of 950 CMR 70.11.

2. The Applicant agrees to perform the field investigations according to the standards outlined in 950 CMR 70.13.

3. The Applicant agrees to submit a Summary Report, prepared according to the standards outlined in 950 CMR 70.14 by: October 2012

4. The specimens recovered during performance of the proposed field investigation will be curated at:

The Public Archaeology Laboratory, Inc.
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

SIGNATURE A Peter Mair
APPLICANT(S)

April 26, 2012
DATE

Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Richard A. Davey, Secretary & CEO
Frank DePaola, Administrator

massDOT
Massachusetts Department of Transportation
Highway Division

May 2, 2012

RE: Royalston/Northeast Fitzwilliam Road Bridge (R-12-004) Replacement (604175) Archaeological Survey

Mr. John Morse
58 Northeast Fitzwilliam Road
Royalston, MA 01368

Dear Mr. Morse:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004 which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston. In complying with the environmental requirements of the project, MassDOT must undertake an archaeological survey within the project area, which includes a portion of your property immediately adjacent to the bridge. Access to such property for the purpose of performing this survey is allowed under Massachusetts General Laws, Chapter 81, as amended by Chapter 582 of the Acts of 1958, Section 7f (copy attached). This law authorizes agents or employees of MassDOT to enter onto property to conduct engineering and scientific surveys during project development and design.

The Public Archaeology Laboratory, Inc. (PAL), a cultural resources consulting firm, will be acting as MassDOT's agent in performing this survey. The archaeological work will be conducted by PAL under a permit issued by the MA State Archaeologist, as mandated by Massachusetts General Laws, Chapter 9, Sections 26-27C and its implementing regulations 950 CMR 70. The purpose of the survey, through a combination of research, subsurface testing, mapping and photo-documentation will be to evaluate visible mill remains and features adjacent to the bridge, and to identify and assess any pre-contact Native American archaeological sites that may be present in the project area. The subsurface testing will require the excavation of 2-foot square test units which will be dug by hand and back-filled the same day to pre-excavation contours. We expect the archaeological work on your property to begin in the next three weeks and not to last more than a few days.

MassDOT greatly appreciates your cooperation in this matter, and will make every effort to minimize the inconvenience. If there are any questions pertaining to the archaeological survey, please contact either Mr. John Rempelakis of MassDOT's Environmental Services, at 617-973-7493, or Mr. Peter Mair, PAL's Principal Investigator, at 401-728-8780.

Sincerely,

Kevin M. Walsh
Director of Environmental Services

att: right-to-survey law
xc: D. Cox, PAL, w/ att.

Deval L. Patrick, Governor
Timothy P. Murray, Lt. Governor
Richard A. Davey, Secretary & CEO
Frank DePaola, Administrator

massDOT
Massachusetts Department of Transportation
Highway Division

May 2, 2012

RE: Royalston/Northeast Fitzwilliam Road Bridge (R-12-004) Replacement (604175) Archaeological Survey

Mr. Dana Perkins
45 Northeast Fitzwilliam Road
Royalston, MA 01368

Dear Mr. Perkins:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004 which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston. In complying with the environmental requirements of the project, MassDOT must undertake an archaeological survey within the project area, which includes a portion of your property immediately adjacent to the bridge. Access to such property for the purpose of performing this survey is allowed under Massachusetts General Laws, Chapter 81, as amended by Chapter 582 of the Acts of 1958, Section 7f (copy attached). This law authorizes agents or employees of MassDOT to enter onto property to conduct engineering and scientific surveys during project development and design.

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Sincerely,

Kevin M. Walsh
Director of Environmental Services

att: right-to-survey law
xc: D. Cox, PAL, w/ att.

The General Laws of Massachusetts

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PART I. ADMINISTRATION OF THE GOVERNMENT

TITLE XIV. PUBLIC WAYS AND WORKS

CHAPTER 81. STATE HIGHWAYS

LAYING OUT OF STATE HIGHWAYS

Chapter 81: Section 7F. Entry on private land for purpose of surveys, soundings, drillings and examinations

Section 7F. Whenever the department deems it necessary to make surveys, soundings, drillings or examinations to obtain information for or to expedite the construction of state highways or other projects under its jurisdiction, the department, its authorized agents or employees may, after due notice by registered or certified mail, enter upon any lands, waters and premises, not including buildings, in the commonwealth for the purpose of making surveys, soundings, drillings and examinations as they may deem necessary or convenient for the purposes of this act, and such entry shall not be deemed a trespass nor shall an entry for such purposes be deemed an entry under any condemnation proceedings which may be then pending. The department shall make reimbursement for any injury or actual damage resulting to such lands, waters and premises caused by any act of its authorized agents or employees and shall so far as possible restore such lands to the same condition as prior to the making of such surveys, soundings, drillings or examinations.

Public Archaeology Laboratory

May 3, 2012

Royalston Historic District Commission
P.O. Box 125
Royalston, Massachusetts, 01368

Re: MassDOT Assignment #03 - Royalston Bridge Replacement
Archaeological Survey
PAL #2710; Contract No. 62358 Statewide Open Services

Dear Sir/Madam:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

A site visit by MassDOT Cultural Resources Unit (CRU) staff revealed that the existing bridge is located on a former mill dam. In addition to the dam other visible mill-related features in or immediately adjacent to the project area include dry-laid stone walls associated with the former mill building east of the bridge and the mill pond to the west, and an open tail race. Research indicates that the mill was built in the mid-nineteenth century. CRU staff also determined that, based on environmental factors, the project area is sensitive for pre-contact Native American archaeological sites.

The MassDOT has retained PAL to conduct a combined intensive (locational) archaeological survey/site examination to determine the presence/absence of archaeological sites relating to Native American use of the area that may be affected by the proposed undertaking, and to further evaluate and document the nineteenth century mill complex. The results of these surveys will facilitate consultation with the Massachusetts State Historic Preservation Officer regarding the potential impacts of the project in accordance with Section 106 of the National Historic Preservation Act, as amended.

By this letter we are informing you of this survey and requesting any information regarding the project area you would be willing to share. Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to contact Deborah C. Cox, President, or me, at your convenience.

Sincerely,

A. Peter Mair, II, RPA
Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

Public Archaeology Laboratory

May 3, 2012

John A. Peters, Jr.
Executive Director
Massachusetts Commission on Indian Affairs
100 Cambridge Street, Suite 300
Boston, Massachusetts 02114

Re: MassDOT Assignment No. 03 - Royalston Bridge Replacement
Archaeological Surveys
PAL #2710; Contract No. 62358 Statewide Open Services

Dear Mr. Peters:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

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Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

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palinc.com

Public Archaeology Laboratory

May 3, 2012

Ramona Peters
Tribal Historic Preservation Officer
Mashpee Wampanoag Tribe
766 Falmouth Road, Madaket Place, Office A3
Mashpee, Massachusetts 02649

Re: MassDOT Assignment No. 03 - Royalston Bridge Replacement
Archaeological Surveys
PAL #2710; Contract No. 62358 Statewide Open Services

Dear Ms. Peters:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

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Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

Public Archaeology Laboratory

May 3, 2012

Bettina Washington
Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head/Aquinnah
20 Black Brook Road
Aquinnah, Massachusetts 02535-9701

Re: MassDOT Assignment No. 03 - Royalston Bridge Replacement
Archaeological Surveys
PAL #2710; Contract No. 62358 Statewide Open Services

Dear Ms. Washington:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

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Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

Public Archaeology Laboratory

May 3, 2012

Walter A. Vickers
Nipmuc Nation Tribal Council (Hassanamesit Band)
25 Main Street
South Grafton, Massachusetts 01560

Re: MassDOT Assignment #03 - Royalston Bridge Replacement
Archaeological Survey
PAL # 2710; Contract No. 62358 Statewide Open Services

Dear Mr. Vickers:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

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Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

Public Archaeology Laboratory

May 3, 2012

John Brown
Narragansett Indian Tribal Historic Preservation Officer
P.O. Box 350
Wyoming, Rhode Island 02898

Re: MassDOT Assignment #03 - Royalston Bridge Replacement
Archaeological Survey
PAL #2710; Contract No. 62358 Statewide Open Services

Dear Mr. Brown:

The Massachusetts Department of Transportation, Highway Division (MassDOT) proposes to replace Bridge R-12-004, which carries Northeast Fitzwilliam Road over Lawrence Brook in Royalston (Figure 1). The 1936 bridge will be replaced on existing alignment and will also entail reconstruction (minor widening) of the approach roadways, replacement of existing guardrails, construction of a drainage swale, construction of a small wetland replacement area, installation of rip-rap for scour protection, slope work, and landscaping. The project will be undertaken with federal funds and will also require a wetland alteration permit from the Army Corps of Engineers (ACOE) and is thus subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

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Sincerely,

A. Peter Mair, II, RPA
Senior Archaeologist

Enclosures

cc: John Rempelakis, MassDOT (w/o enclosure)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

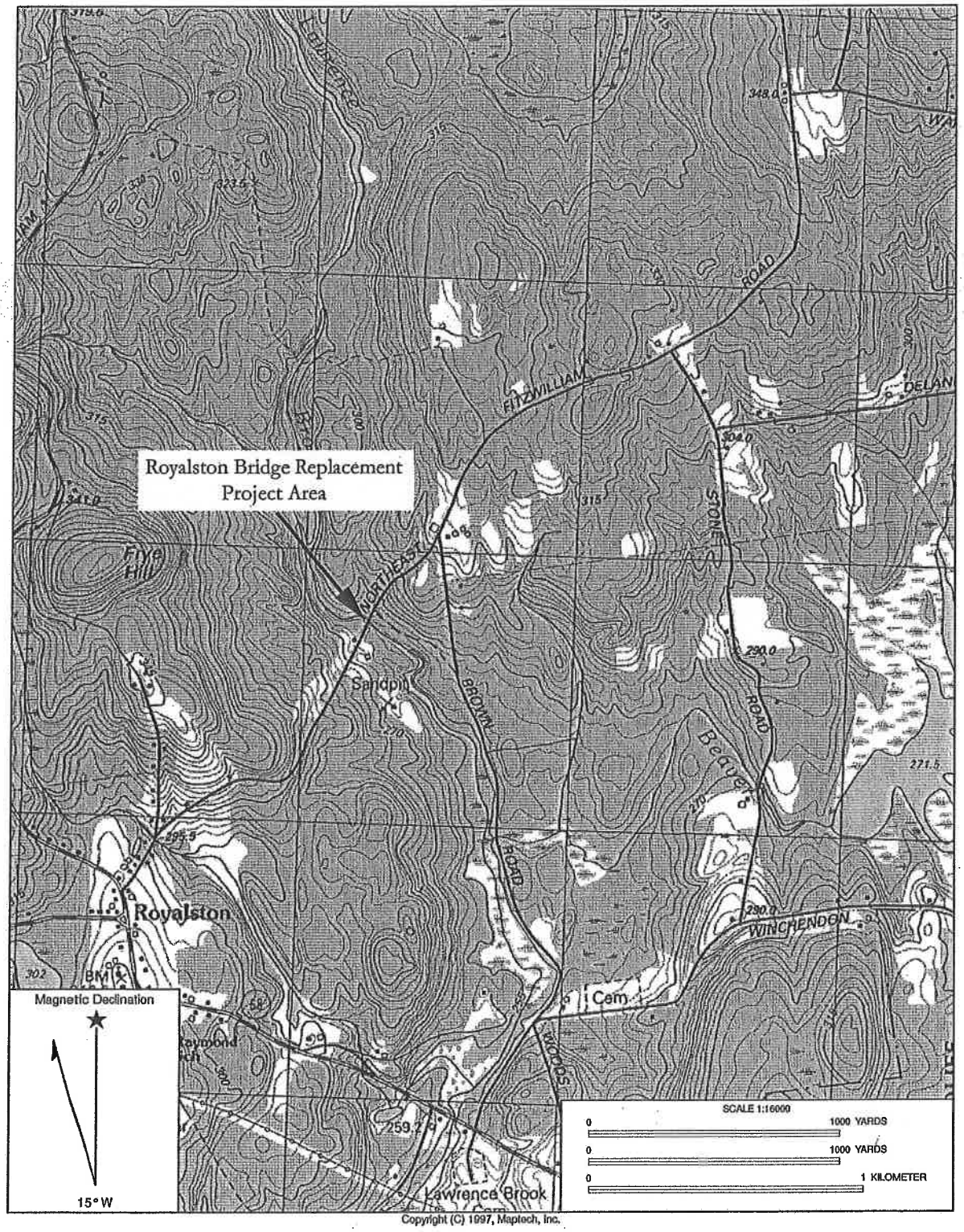

Figure 1. Location of Royalston Bridge Replacement project area on the Winchendon, MA USGS topographic quadrangle.

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

May 10, 2012

Deborah C. Cox
President
PAL
210 Lonsdale Avenue
Pawtucket, RI 02860

Attn: A.Peter Mair, II and Suzanne Cherau

RE: MassDOT Northeast Fitzwilliam Road Bridge (R-12-004) Project, Royalston, MA. MHC #RC.38713.

Dear Deborah:

Staff of the Massachusetts Historical Commission have reviewed the State Archaeologist's permit application for the intensive (locational) archaeological survey and site examination, received May 3, 2012, for the project referenced above and have the following comments.

Please prepare an addendum to the research design and methodology that incorporates the following comments.

The technical proposal (pg. 13) indicates that Suzanne Cherau is proposed to be a member of the project research team. Please submit a revised Appendix B with both A. Peter Mair, II and Suzanne Cherau as co-Principal Investigators with original signatures.

Please describe the expected results of the intensive (locational) survey and site examination. How will the results of the investigation consider previous historic and archaeological research in this area of Massachusetts, and previous relevant research on the use and construction of 19th century water-powered mills? What are the research questions and methods proposed to address the questions?

These comments are provided to assist in compliance with the Secretary of the Interior's Standards and Guidelines for Archeology & Historic Preservation (48 Fed. Reg. 190 (1983)) and Massachusetts General Laws Chapter 9, Sections 26-27C (950 CMR 70). If you have questions or require additional information please contact Jonathan K. Patton at this office.

Sincerely,

Brona Simon

Brona Simon
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: John Rempelakis, MassDOT

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.state.ma.us/sec/mhc

Public Archaeology Laboratory

May 17, 2012

Brona Simon
State Archaeologist
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Attn. Jonathan Patton

Re: Royalston Bridge Replacement, R-12-004
Royalston, Massachusetts
Archaeological Survey
Contract No. 62358 Statewide Open Services; MassDOT Assignment #03
MHC #RC.38713, PAL #2710

Dear Ms. Simon:

As requested in your letter of May 10, 2012, please find enclosed a revised permit application and technical proposal to conduct an intensive (locational) archaeological survey/site examination for the proposed replacement of bridge R-12-004 which carries North East Fitzwilliam Road over Lawrence Brook in Royalston, Massachusetts. As requested, Suzanne Cherau is now listed as co-Principal Investigator. The technical proposal includes research questions focusing on the physical characteristics of the former sawmill located in the project area, the nature of the operations at the mill, and the role of the mill in the local and regional economy.

We trust that this submission is responsive to your comments. If you have any questions or concerns, please do not hesitate to contact Deborah C. Cox, President, or me at your convenience.

Sincerely,

A. Peter Mair, II, RPA
Senior Archaeologist

Enclosure

cc: John Rempelakis, MassDOT (w/encl.)

210 Lonsdale Avenue Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

950 CMR: DEPARTMENT OF THE STATE SECRETARY

APPENDIX B
COMMONWEALTH OF MASSACHUSETTS

SECRETARY OF STATE: MASSACHUSETTS HISTORICAL COMMISSION

PERMIT APPLICATION: ARCHAEOLOGICAL FIELD INVESTIGATION

A. General Information

Pursuant to Section 27(c) of Chapter 9 of the General Laws and according to the regulations outlined in 950 CMR 70.00, a permit to conduct a field investigation is hereby requested.

1. Name(s): A. Peter Mair, II/Suzanne Cherau

2. Institution: The Public Archaeology Laboratory, Inc.

   Address: 210 Lonsdale Avenue
   Pawtucket, Rhode Island 02860

3. Project Location: Bridge R-12-004
   see attached proposal

4. Town(s): Royalston

5. Attach a copy of a USGS quadrangle with the project area clearly marked.

   see attached

6. Property Owner(s): Town of Royalston

7. The applicant affirms that the owner has been notified and has agreed that the applicant may perform the proposed field investigation.

8. The proposed field investigation is for a(n):

   a. Reconnaissance Survey
   b. Intensive Survey
   c. Site Examination
   d. Data Recovery

B. Professional Qualifications

1. Attach a personnel chart and project schedule as described in 950 CMR 70.11 (b).

a. Personnel

Principal Investigator(s):	A. Peter Mair, II/Suzanne Cherau
Industrial Historian:	John Daly
Project Archaeologist(s):	Erin Timms
Field Crew:	Melissa Wales

b. Schedule

Fieldwork:	May 2012
Laboratory:	May 2012
Report:	July 2012

2. Include copies of curriculum vitae of key personnel (unless already on file with the State Archaeologist).

C. Research Design

1. Attach a narrative description of the proposed Research Design according to the requirements of 950 CMR 70.11.

2. The Applicant agrees to perform the field investigations according to the standards outlined in 950 CMR 70.13.

3. The Applicant agrees to submit a Summary Report, prepared according to the standards outlined in 950 CMR 70.14 by: October 2012

4. The specimens recovered during performance of the proposed field investigation will be curated at:

The Public Archaeology Laboratory, Inc.
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

A. Peter Mair II

SIGNATURE Suzanne G. Cherau
APPLICANT(S)

May 15, 2012
DATE

Royalston Historic District Commission
P.O. Box 125
Royalston, Massachusetts, 01368

Royalston, May 18, 2012

A. Peter Mair, II, RPA
Senior Archeologist
PAL
210 Lonsdale Avenue
Pawtucket, RI 02860

RE: Mass DOT Assignment #03, PAL #2710

Dear Mr. Mair:

The Royalston Historic District Commission has reviewed your May 3rd letter about the reconstruction of the bridge carrying North East Fitzwilliam Road over the Lawrence Brook (section 106 process).

We had already been contacted in February as part of that process and had provided comments to Mass DOT (see attached copy of our letter) that may have resulted in the site visit by the Mass DOT CRU staff. We stand by our comments in that letter but we are also delighted that you will conduct an archeological survey related to Native Americans use of the area as well as to the 19th century mill complex. We hope to receive a copy of your report.

As far as I know, the current commission has no more knowledge than what is reported in the books by L.B Caswell and H.C. Bartlett. We know that Mr. Keith Newton (head of the Royalston public works dept) has a large copy of the picture that also appears in the Bartlett book. In addition I will forward your letter to some local historians.

Our chair, Peter Kraniak (P.O. Box 57 Royalston MA 01368-0057 (978) 249 7625 pjpolska@yahoo.com), would appreciate it being notified of the date of your survey.

Sincerely,

P.A. Humblet

Pierre A. Humblet
RHDC secretary

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit Number 3317 Date of Issue May 24, 2012

Expiration Date May 24, 2013

PAL is hereby authorized to conduct an archaeological field investigation pursuant to Section 27C of Chapter 9 of General Laws and according to the regulations outlined in 950 CMR 70.00.

Royalston Bridge R-12-004 Replacement Project, Royalston

Project Location

Brona Simon

Brona Simon, State Archaeologist
Massachusetts Historical Commission

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.state.ma.us/sec/mhc

APPENDIX C

MHC ARCHAEOLOGICAL SITE FORM

FORM D ARCHAEOLOGICAL SURVEY
HISTORIC ARCHAEOLOGICAL SITES

Massachusetts Historical Commission
Office of the Secretary
State House, Boston

FOR MHC OFFICE USE ONLY

Town
UTM
QUAD

MHC NO.

NR ☐ ACT ☐ ELIG. ☐ NO DISTRICT ☐ YES ☐ NO

IDENTIFICATION

1. SITE NAME(S) Newton-Davis Mill Site | MAS NO. | OTHER NO.

2. TOWN/CITY Royalston | COUNTY Worcester

3. STREET AND NUMBER (IF NOT AVAILABLE, GIVE DETAILED DESCRIPTION OF HOW TO REACH SITE)
NE Fitzwilliam Road

4. OWNER(S) AND ADDRESS(ES) John Morse, 58 NE Fitzwilliam Rd, Royalston
Dana Perkins, Pleasant Street, Lunenburg, MA
☐ Public ☑ Private

5. SITE LOCATED BY
☑ CRM Survey ☐ Avocational Collector ☐ Field Schoo ☐ Other (Specify)
Describe Sampling Strategy used to Locate Site Subsurface testing, mapping

DESCRIPTION

6a. PERIOD(S) (Check all applicable boxes
☐ 17th C. ☐ 18th C. ☑ 19th C. ☑ 20th C. ☐ Unknown

6b. Estimated Occupation Range c. 1850 - 1923

7. DATING METHODS
MAPS Walling 1857, Beers 1870, Everts & Richards 1898
TITLE SEARCH ☑ Yes ☐ No
ADDITIONAL DOCUMENTS Bartlett 1906; Caswell 1917
Comparative Materials
OTHER Informant Interviews

8a. SITE TYPE ☐ Agrarian ☐ Residential ☑ Industrial ☐ Commercial ☐ Military
☐ Unknown ☐ Other (Specify)

8b. DESCRIBE Saw and Turning Mill Complex

9. DESCRIBE SIZE AND HORIZONTAL AND VERTICAL BOUNDARIES
See Continuation Sheet

10. STRATIGRAPHY

Surface Indicators	Stratigraphy
☑ Standing Ruins	☐ Stratified
☑ Surface Finds	☐ NOT Stratified
☐ Markers	☐ Below Ground Structural Remains
☐ Cellar Hole	

ENVIRONMENT

11. SOIL
USDA Soil Serie: Colton
Contour Elevation: 263 m asl
% Slope of Ground: ☑ 0 - 5 ☐ 5 - 15 ☐ 15 - 25 ☐ Over 25
Acidity: 1 ——— 7 ——— 14 (Acid) (Base)

12. TOPOGRAPHY
☑ Flat ☐ Gentle undulation ☐ Other
☐ Rolling Hill ☐ Mountains

13. WATER
NEAREST WATER SOURCE: Lawrence Brook
SIZE AND SPEED:
DISTANCE FROM SITE: 234 feet
SEASONAL AVAILABILITY: Year round

14. VEGETATION
PRESENT: overgrown
PAST: cleared

CONDITION

15. SITE INTEGRITY
☐ Undisturbed ☑ Good ☐ Fair ☐ Destroyed
IF DISTURBED, DESCRIBE DISTURBANCE

16. SURROUNDING ENVIRONMENT
☑ Open Land ☑ Woodland ☐ Eroded Soils ☐ Residential ☐ Scattered Buildings Visible from Site
☐ Commercial ☐ Industrial ☑ Rural
☐ Coastal ☐ Isolated

17. ANY THREATS TO SITE
☑ Yes ☐ No
DESCRIBE POTENTIAL THREATS
Potential impacts from replacement of bridge

18. ACCESSIBILITY TO PUBLIC
☐ Free Access ☑ Need Owner Permission ☐ Restricted ☐ No Access

RESEARCH STATUS

19. PREVIOUS WORK		
☐ Surface Collecte	By Whom / Affiliation	Date
☐ "Pot hunted"	By Whom / Affiliation	Date
☑ Tested	By Whom / Affiliation E. Timms/PAL	Date 2012
☑ Excavation	By Whom / Affiliation E. Timms/PAL	Date 2012

20. PRESENT LOCATION OF MATERIALS (INCLUDE ADDRESS)
PAL, 210 Lonsdale Avenue, Pawtucket, RI

21. REFERENCES / REPORTS

SIGNIFICANCE

22. RECOVERED DATA (identify in DETAIL, including structures, related outbuildings, landscape features, etc.)

Documentary: Deeds, Bartlett 1907 Reflections on Royalston; Caswell 1917 History of the town of Royalston, see continuation sheet

Archeological see continuation sheet

23. ARCHAEOLOGICAL OR HISTORICAL SIGNIFICANCE

Based on preliminary research and the results of field investigations, the mill complex, designated the Newton-Davis Mill Site, is a significant archaeological resource and is potentially eligible for listing in the National Register of Historic Places, at the local level, under Criterion A, "that are associated with events that have made a significant contribution to the broad patterns of our history". The mill contributes to our understanding of the broad trends of the sawmilling industry in northern Worcester County and its association with the furniture making industry in nearby Gardner. It may also be eligible under Criterion C "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction". The Newton-Davis Mill site is associated with the Greek Revival house located to the west, contributing to the overall mid-nineteenth century rural industrial setting. (see contiuation sheet)

SITE PLAN

24. ATTACH PORTION OF USGS QUAD WITH SITE AREA MARKED TO THIS FORM

25. SKETCH PLAN OF SITE

See Attached Map

Scale:

26. PHOTOS: Attach if available
Label each with: Date of photo, photographer, view shown, name of site

REPORTED BY:	NAME A. Peter Mair, II	ADDRESS 210 Lonsdale Avenue, Pawtucket, RI.
	ORGANIZATION PAL	DATE 07/11/2012

FOR OFFICE USE ONLY

FIELD EVALUATION

COMMENTS

9. Site Size
The site examination phase of the field investigations entailed the recordation of the structural mill remains with Leica TCR405 Total Station. The majority of the extant mill complex and associated domestic structures extend to the south of the mill pond retaining wall and the sawmill foundation wall. Southeast of the mill were extant dry-laid foundations of the two horse barns, the company wagon shed, and the "long" house which was identified in the c.1907 postcard. Other visible features recorded included the earth and rubble stone dam remains which flank the bridge abutment to the north and south. The dam is approximately 40-x-350 feet (ft) in length and is faced with dry laid boulders, field and chink stones; however most of the stonework has been covered by vegetation, slopewash, and disarticulated boulders and stone. One 40 ft (12.2 m) section of exposed intact dam stonework is evident within the southeast quad located 27 ft (8.2 m) north of the 1907 sawmill. A waterwheel/steam turbine pit abuts the 1907 sawmill's north wall. To the east, the tailrace adjoins the waterwheel/steam turbine pit and transverses northeasterly back to Lawrence Brook.

22. Documentation:
Based on research conducted by MassDOT staff, a timetable of activity within the project area can be pieced together. From historic maps and census data the construction of the mill can be placed sometime before 1850. The 1831 map of Royalston (Blake 1831) does not show a mill. By 1857 (Walling 1857) a mill is depicted, owned by S. Holman. Holman's mill is depicted on the western side of Lawrence Brook, south of the road. A second "Holman" structure, presumed to be the residence, is located north of the road and west of the mill pond (this house still stands). According to general histories (Bartlett 1907) Holman established a sawmill and gristmill on the site and from census data, Seth Holman was listed as a sawyer in the 1850 census. His son, Seth N. Holman assisted in hauling and sawing logs and in 1855; the father sold a half-interest in the property to his son.

In 1858, the Holman's sold the mill and house to Maynard Partridge who ran the business for ten years, producing lumber and turned chair stock (Bartlett 1909). In 1868 Maynard Partridge sold the business to Trueworthy Seaver who ran it for one year before selling back to Maynard and John Milton Partridge. The business continued as M. Partridge & Son until 1876 (Bartlett 1907). In 1876 the mill was converted to steam power (Bartlett 1907). The 1870 (Beers 1870) map depicts Maynard Partridge living in the former Holman house. His son, John Milton Partridge is living in a house across the street, adjacent to the mill (this house is possibly the "long house" depicted in a 1907 postcard [see Figure 2]). In 1877, Maynard Partridge sells a half-interest to all property, including the mill to J. Milton Partridge He sells the other half to J. Milton in 1884, who continues to operate the mill until 1990.

By 1894, Willard H. Newton, John Milton Partridge's son-in-law, is living in the Holman homestead and John Milton Partridge continues to live across the street. In 1905, John Milton Partridge sells the mill and mill privilege to Willard H. Newton and Willie Davis, Newton's business partner. Newton and Davis replaced the old up and down sawmill with a circular blade. The original, heavy timbered mill burned down in1905. Newton and Davis rebuilt, using in part a building from the next water privilege downstream owned by Millard W. White (Bartlett 1907). Newton and Davis soon added a number of portable saw mills (circular saws powered by a steam boiler and engine on frames that could be transported to wood lots. Waste material fed the boiler and sawn products were transported to the mill, greatly lowering costs (Bartlett 1907). Newton and Davis continued to operate the mill until 1925 when Newton died intestate, leaving the property to his son Leon. It is assumed that the mill was demolished shortly after Newton's death and in 1935 all woodlots and other lands owned by Newton and Davis were seized and sold at auction to cover delinquent taxes.

Archaeological:

The site examination phase of the field investigations entailed the recordation of the structural mill remains with Leica TCR405 Total Station. Two hundred and ten points were collected recording visible structural features and elevations. The majority of the extant mill complex and associated domestic structures extend to the south of the mill pond retaining wall and the sawmill foundation wall. Southeast of the mill were extant dry-laid foundations of the two horse barns, the company wagon shed, and the "long" house which was identified in the c.1907 postcard. Other visible features recorded included the earth and rubble stone dam remains which flank the bridge abutment to the north and south. The dam is approximately 40-x-350 feet (ft) in length and is faced with dry laid boulders, field and chink stones; however most of the stonework has been covered by vegetation, slopewash, and disarticulated boulders and stone. One 40 ft (12.2 m) section of exposed intact dam stonework is evident within the southeast quad located 27 ft (8.2 m) north of the 1907 sawmill. A waterwheel/steam turbine pit abuts the 1907 sawmill's north wall. To the east, the tailrace adjoins the waterwheel/steam turbine pit and transverses northeasterly back to Lawrence Brook. No evidence of the headrace was identified, but is suspected to be to the west and northwest of the waterwheel/turbine pit. The headrace would most likely be in the dam structure that is currently covered by an overburden of slopewash and road fill on both the east and west side of the dam.

An unknown mill structure (Feature 1) was identified in the southeast quadrant in close proximity to the waterwheel/turbine pit and tailrace. The feature consists of a cobble floor with a foundation of dry-laid quarried stones and large stone slabs delimiting the

corners and perimeter of the feature.
Test pits TB-1, TB-4 and JTP-1 were placed east, west, and north of the Feature 1. Excavation Unit-1(EU-1), a 1 x 2 meter trench was placed on the west side of Feature 1 to investigate the possible function and extent of structure. The unit exposed a significant accumulation of small to medium cobbles extending to 40 to 50 cmbs (Figure 5). The unit and three test pits and clearing of Feature 1 accounted for 93 percent of the artifacts recovered from the site.

23). Research questions.

1)What are the physical characteristics of the mill complex? Through the combination of research and field investigations, a somewhat complete picture of the physical attributes of the mill site can be pieced together. Informant interviews, deeds, general histories, and an examination of a historic photograph/postcard depict a complex consisting of a sawmill, barns, sheds, and residences. Post-contact features identified within the project area during the survey included the dam, tailrace, waterwheel/steam turbine pit and an unidentified foundation with cobble floor (Feature1). The c. 1907 postcard depicts the "new" sawmill. From deeds and the general histories we know that the original sawmill burned shortly after being acquired by Newton and Davis in 1905. Given the proximity of Feature 1 to the tailrace and wheel pit, and the recovery of melted glass and lead, it could be argued that the "stone floor/platform" is the location of the original sawmill. The 50 centimeter thick accumulation of cobbles could have supported heavier machinery utilized in a sawmill. Alternatively, the cobble platform could have supported "turning" machines, as evidenced by the recovery of knives. It is possible the new "1906" will was built on the location of the previous mill and lower cobble platform was the location of the turning mill that was added to the complex.

2)What was the nature of the mill operation? Research and field investigations have shed some light on the nature of the saw mill operation. Research would suggest that the mill was built as a full-time operation and not as a means to supplement income from other activities during the "off season". Seth Holman, the original owner and mill operator lists himself as a "sawyer" in the 1850 census. The general histories always refer to the "business" when describing various operations and changes in ownership of the mill. Through the years and changes in ownership the mill was always a constant and its continued operation into the twentieth century suggests that it was a major commercial operation.

Artifacts recovered during subsurface investigations included a number of knives that are believed to be from turning or shaping machinery to produce parts for chair manufactories in neighboring Gardner. Research reveals that the various mill owners were continually updating the mill and its machinery in response to new technologies: steam power in 1876; circular saw blade in 1905, portable saw mills. These improvements suggest that the mill owners were willing to invest capitol to improve operations and maintain the mill as a successful business.

3)How did this mill contribute to the local lumber and wood products industry and operate within the larger economy of northern Worcester County? There is archaeological evidence to suggest that the mill operation did evolve as new technologies emerged. Structural elements of the mill complex include a waterwheel pit and a wheel/turbine pit, and pieces of metal piping that is assume to be parts of a penstock or exhaust stack for a steam boiler. Some of the recovered artifacts include what appear to be cutting knives that would have been used in machinery used to shape wood into final products for the manufacture of chairs. A review of the general histories indicates that the mill did in fact make and ship chair parts to neighboring Gardner.

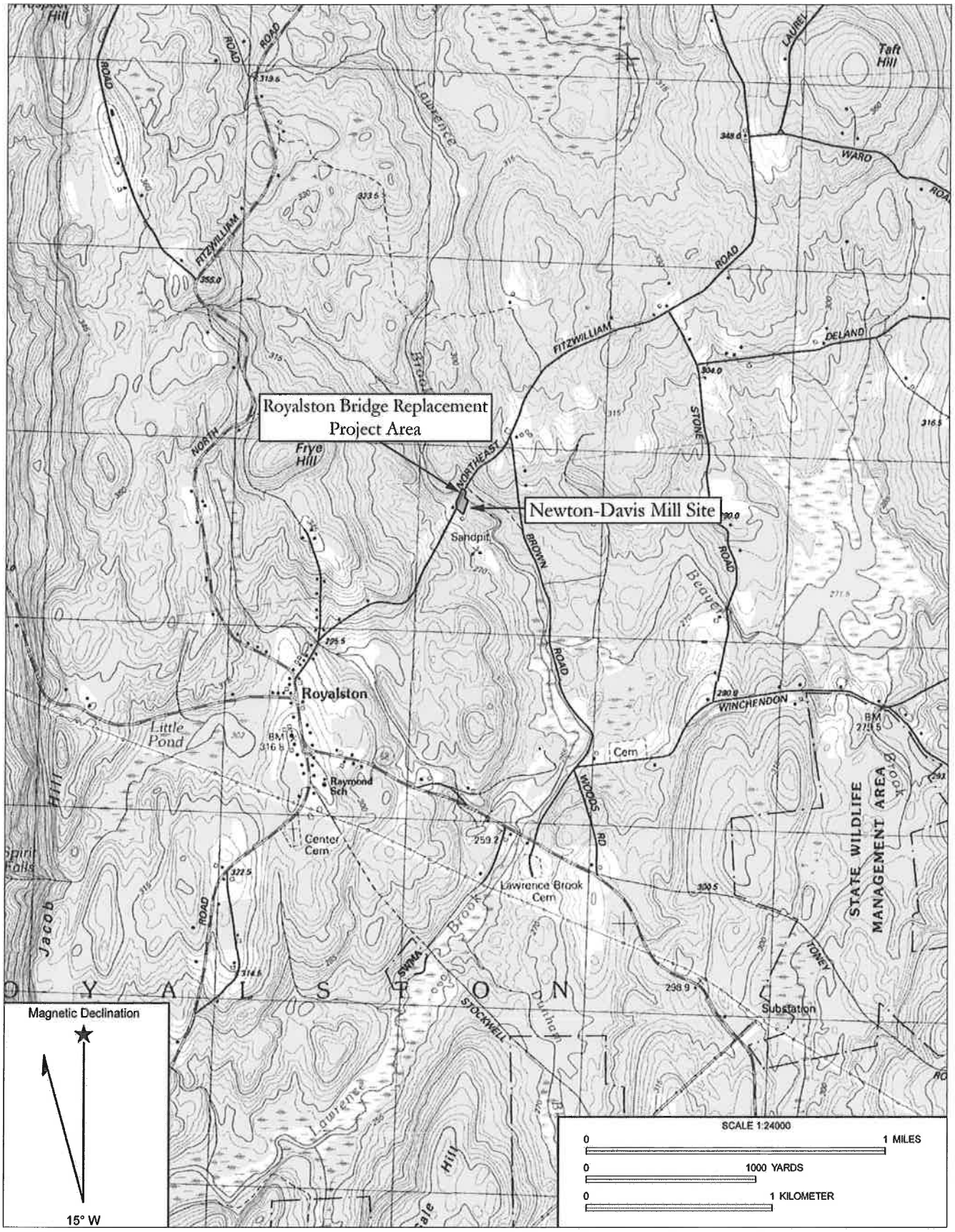

Figure 1. Royalston Bridge Replacement project area on the Winchendon USGS topographic quadrangle, 7.5 minute series

APPENDIX D

DEEDS

3859

4|9

See Book 4304, Page 119.

Affidavit Lien B. 13029 P. 17

affidavit B. 21719 P. 253

affidavit B. 21925 P. 225

I, Joseph H. Ellinwood

of Athol, Worcester County, Massachusetts,

~~being~~ married, for consideration paid, grant to Leon W. Newton and Elizabeth Newton, husband and wife, as tenants by the entirety

of Royalston

with ~~warranty~~ covenants

~~[illegible]~~ a certain tract of land, with the buildings thereon, situated in
[Description and encumbrances, if any]
the easterly part of Royalston, bounded and described as follows:

Beginning at the southwest corner at land now or formerly of L. J. Holden, thence easterly by land of said Holden crossing the town road, thence by land now or formerly of Mrs. F. B. Doane and the Peirce lot so called 98 rods to a marked hemlock tree by the brook, thence northerly up the brook to an oak tree 299 ft. southerly from the mill dam beside the brook, thence westerly to a corner of Newton and Davis mill yard, thence northerly to the road, thence on the road to land now or formerly of P. S. Newton, thence northwesterly by land now or formerly of P. S. Newton to a stake and stones, thence westerly by land of said Newton to the southeast corner of the Richardson lot to a stake and stones, thence northerly by land now or formerly of P. S. Newton and G. E. Peirce 80 rods to a stake and stones, thence westerly by land now or formerly of G. E. Peirce 80 rods to a stake and stones, thence southerly by land now or formerly of G. E. Peirce and J. W. Billings 80 rods to a stake and stones at land now or formerly of B. A. Frye; thence easterly by land now or formerly of B. A. Frye and L. J. Holden 33-1/2 rods to a stake and stones, thence southerly by land now or formerly of L. J. Holden 73 rods to a stake and stones, thence southwesterly by land now or formerly of L. J.Holden to place of beginning containing 103-1/2 acres more or less.

Also, another parcel of land containing twenty-six and one half acres (26½) more or less situated in the northeasterly part of said town of Royalston on the road leading from land nowor formerly of J. E. Cowick to Winchendon, bounded and described as follows:

Beginning on the north side of said road at a corner of walls by land now or formerly ofElijah Reed, thence northerly by land now or formerly of Elijah Reed and James H. Cowick sixty rods more or less dividing the land of the grantor from land of said Cowick, thence easterly by land now or formerly of said Cowick forty rods more or less to land now or formerly of Brown brothers of Winchendon, thence south 15° east by land of said Brown brothers seventy-five rods more or less to the above mentioned road, thence westerly on said road to the place of beginning.

Also, another tract of land in said Royalston, bounded and described as follows:

Commencing at a stake and stones in line of the fence between David Foster and the Partridge Place, so called, thence running easterly by said Partridge land and Newton land (66) sixty-six rods to a stake and stones, thence south 4° east, by said Newton's land (30) thirty rods to stake and stones, thence westerly by land of Newton and D. P. Foster (66) sixty-six rods to stake and stones, thence north 4° west by land of said Foster (30) thirty rods to the place of beginning. Containing (12) twelve acres and (60) sixty rods, be the same more or less.

Also, a certain other tract of land situate in said Royalston, bounded and described as follows:

Beginning at the northwesterly corner of premises on the easterly side of the road leading from the old Pierce Place to the house of the

late Benjamin Brown, thence easterly by land late of said Brown about eighty (80) rods to land formerly of Israel Wetherbee, thence southerly by land formerly of said Wetherbee about sixty-three (63) rods to land of Paul Pierce, thence westerly by land of said Pierce about sixty (60) rods to the road aforesaid thence northerly by said road about sixty-one (61) rods to the place of beginning, containing thirty acres of land be the same more or less.

Being all the same premises conveyed to me by deed of Leon W. Newton of even date to be recorded with Worcester District Registry of Deeds.

The consideration is less than one hundred dollars.

I, Beatrice C. Ellinwood ~~husband~~ wife of said grantor,

release to said grantee all rights of ~~tenancy by the entirety~~ dower and homestead and other interests therein.

~~Witness~~ OUR ~~my~~ hand ~~s~~ and seal ~~s~~ this eighth day of May, 1957

Joseph G. Gagliardi
to both

Joseph H. Ellinwood
Beatrice C. Ellinwood

The Commonwealth of Massachusetts

Worcester ss. May 8, 1957

Then personally appeared the above named Joseph H. Ellinwood

and acknowledged the foregoing instrument to be his free act and deed, before me

Joseph G. Gagliardi Notary Public ~~XXXXXXXXXX~~

My commission expires December 13, 1963

Recorded May 9, 1957 at 8h. 30m. A. M.

140. 1829

Partridge

to

Newton & Davis

Know all men by these presents

that I, J. Milton Partridge of Royalston, in the County of Worcester and Commonwealth of Massachusetts,

in consideration of One Dollar & other valuable consideration,
paid by Newton & Davis of Royalston, County and Commonwealth aforesaid,

the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell, and convey unto the said Newton & Davis, their heirs and assigns, a tract of land located in the northeasterly part of ROYALSTON on the Highway leading from said Royalston to the P. S. Newton place and bounded and described as follows viz:- Beginning at an oak tree near Lawrence Brook; thence westerly by land of the grantor, twenty-one (21) rods to an iron pin driven in the ground; thence northwesterly fifteen feet from a dwelling house of the grantor to the aforesaid highway; thence northeasterly by said highway to the south abutment of the bridge over Lawrence Brook; thence southeasterly to the place of beginning. Hereby intending to convey to the said Newton and Davis the mill privilege formerly owned by Seth N. Holman and later by Maynard Partridge.

To have and to hold the granted premises, with all the privileges and appurtenances thereto belonging to the said Newton & Davis and their heirs and assigns, to their own use and behoof forever.

And I do hereby for myself and my heirs, executors and administrators, covenant with the said grantee and their heirs and assigns that I am lawfully seized in fee-simple of the granted premises, that they are free from all incumbrances that I have good right to sell and convey the same as aforesaid; and that I will and my heirs, executors, and administrators shall warrant and defend the same to the said grantee and their heirs and assigns forever against the lawful claims and demands of all persons.

In witness whereof I, the said J. Milton Partridge, hereunto set my hand and seal this twenty-sixth day of August in the year one thousand nine hundred and five.

Signed, sealed and delivered
in presence of
Henriette T. Nutting

J. Milton Partridge (seal)

Commonwealth of Massachusetts.

Worcester ss. August 26, 1905. Then personally appeared the above-named J. Milton Partridge and acknowledged the foregoing instrument to be his free act and deed, before me—

Frank W. Adams, Justice of the Peace.

Received May 8, 1906 at 8 h. 30 m. A. M. Entered and examined.

Attest: Daniel Hunt Register.

the Phelteplace's land in Warren. Scale 20 feet one inch - Variation Compass 11° West - Surveyed April 12th 1884. F. E. Gleason, Surveyor." and marked "A.B." "22259 feet." Intending allways to convey hereby the smaller of the two plots set forth on said Plan. To have and to hold the granted premises, with all the privileges and appurtenances thereto belonging, to the said Grantee and her heirs and assigns, to their own use and behoof forever. And I do hereby, for myself and my heirs, executors and administrators, covenant with the said Grantee and her heirs and assigns that I am lawfully seized in fee simple of the granted premises; that they are free from all incumbrances, that I have good right to sell and convey the same as aforesaid, and that I will and my heirs, executors and administrators shall warrant and defend the same to the said grantee and her heirs and assigns forever, against the lawful claims and demands of all persons. In witness whereof, I the said Marble Phelteplace hereunto set my hand and seal, this Sixteenth day of April in the year one thousand eight hundred and eighty-four.

Signed and sealed in presence of E. E. Sawyer } Marble Phelteplace (seal)

Commonwealth of Massachusetts, Worcester ss. April 16th 1884. Then personally appeared the above-named Marble Phelteplace and acknowledged the foregoing instrument to be his free act and deed.

Before me Emory E. Sawyer, Justice of the Peace

Rec'd May 13th 1884 at 8 A.M. Att: Fr. By Murry B. Wilder Regr.

Partridge Maynard to John M. Partridge } Know all men by these presents, that I Maynard Partridge of Royalston, in the County of Worcester and Commonwealth of Massachusetts, in consideration of One Thousand Dollars paid by John M. Partridge of Royalston, County and Commonwealth aforesaid, the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the said John M. Partridge his heirs and assigns, one undivided half of a certain tract or parcel of land situated and lying in the Easterly part of said Royalston, and bounded and described as follows, namely: Beginning at the Southwest corner thereof by land of George E. Peirce; thence by land of said Peirce crossing the town road and by land of D. P. Foster and said Peirce 98 rods to a marked hemlock tree in the brook; thence Northerly up the brook to land formerly of Elmer Newton; thence Westerly by

land formerly of said Newton to the Southeast corner of the Richardson Lot, so called, to a stake and stones; thence Northerly by land formerly of said Newton and Mandell Pike 80 rods to a stake and stones; thence Westerly by land of said Pike and David P. Foster 80 rods to a stake and stones; thence Southerly by land of said Foster 80 rods to a stake and stones at Mrs. Frye's North line; thence Easterly by land of Mrs. Frye and George E. Peirce to the Northeast corner of said Peirce's land; thence Southerly by land of said Peirce 15 rods to a stake and stones; thence Southwesterly by land of said Peirce to the place of beginning containing by estimation 104½ acres of land, with saw-mill, two houses, barn and other buildings, with machinery and fixtures in said mill and all the privileges thereto belonging. Hereby meaning to convey to the said John M. Partridge, the remainder of a tract of land, an undivided half of which was conveyed to said Partridge by a deed dated March 1, 1877 and recorded in Worcester Registry of Deeds, Vol. 1007 Page 485.

To have and to hold the granted premises, with all the privileges and appurtenances thereto belonging, to the said John M. Partridge and his heirs and assigns, to their own use and behoof forever.

And I do hereby, for myself and my heirs, executors and administrators covenant with the said grantee and his heirs and assigns that I am lawfully seized in fee simple of the granted premises, that they are free from all incumbrances except what is known to the grantee, that I have good right to sell and convey the same as aforesaid; and that I will and my heirs, executors and administrators shall warrant and defend the same to the said grantee and his heirs and assigns forever against the lawful claims and demands of all persons. In witness whereof, I, the said Maynard Partridge hereunto set my hand and seal this Sixth day of May in the year one thousand eight hundred and eighty-four.

Signed and sealed in presence — Frank W. Adams — } Maynard Partridge (seal)

Commonwealth of Massachusetts. Worcester ss. May 6, 1884. Then personally appeared the above named Maynard Partridge and acknowledged the above instrument to be his free act and deed.

Before me Frank W. Adams Justice of the Peace

Rec'd May 13 1884 at 8 P.M. Sec'd & Ex'd By Nancy B. Wilder Reg'r

then secured by this Deed, whether then or thereafter payable, including all costs, charges, and expenses incurred or sustained by reason of any failure or default on the part of me, or of my representatives to perform and fulfil the condition of this Deed, rendering the sale, if any, to me or my heirs or assigns. And it is agreed that the grantee, or his executors, administrators, or assigns, or any person or persons in their behalf, may purchase at any sale made as aforesaid, and that no other purchaser shall be answerable for the application of the purchase money, and that until default in the performance of the condition of this Deed, I, and my heirs and assigns may hold and enjoy the granted premises, and receive the rents and profits thereof. And for the consideration aforesaid, I, Mary Flaherty, wife of the said Timothy Flaherty, do hereby release unto the said grantee and his heirs and assigns, all right of or to bite dower and homestead in the granted premises. In witness whereof, we the said Timothy Flaherty and Mary Flaherty have hereunto set our hands and seals this First day of June in the year one thousand eight hundred and seventy seven.

Signed, sealed and delivered in presence of Charles F. Baker — Timothy his X mark Flaherty (seal) — Mary her X mark Flaherty (seal)

Commonwealth of Massachusetts. Worcester, ss. June 2d 1877. Then personally appeared the above named Timothy Flaherty and acknowledged the foregoing instrument to be his free act and deed,

Before me, Charles F. Baker, Justice of the Peace.

Rec.d June 5th 1877 at 3 P.M. Entered, Exd. By Henry B. Wilder Reg.

Partridge Maynard to John M. Partridge

Know all men by these presents, that I, Maynard Partridge of Royalston, County of Worcester and Commonwealth of Massachusetts, in consideration of one thousand dollars paid by John M. Partridge, of Royalston, County of Worcester and Commonwealth of Massachusetts, the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the said John M. Partridge, his heirs and assigns, one undivided half of a certain tract or parcel of land, situated and lying in the Easterly part of said Royalston, bounded and described as follows, viz: Beginning at the Southwest corner thereof by land of Elmer Pierce, thence by land of said Pierce, crossing the Town road and and by land of D. P. Foster and said Pierce 98 rods to a marked hemlock tree in the brook, thence Northerly up the brook to land of Elmer Newton, thence Westerly by land of said Newton to the Southeast

corner of the Richardson lot, to a stake and stones, thence Westerly by land of said Newton and Mandell Pike, 80 rods to a stake and stones, thence Northerly by land of said Pike and Charles H. Coggin, 80 rods to a stake and stones, thence Southerly by land of said Coggin, 80 rods to a stake and stones at Mrs. Fay's north line, thence Easterly by land of Mrs. Fay and Edwin Pierce to the Northeast corner of said Pierce's land, thence Southerly by land of said Pierce 155 rods to a stake and stones, thence Southeasterly by land of said Pierce to the place of beginning. Containing by estimation 114 ¾ acres of land with saw mill, two houses, barn, and other buildings, with machinery and fixtures in said mill, and all the privileges thereto belonging. To have and to hold the granted premises, with all the privileges and appurtenances thereto belonging, to the said John H. Partridge, and his heirs and assigns, to their own use and behoof forever. And I do hereby for myself and my heirs, executors and administrators, covenant with the said grantee and his heirs and assigns, that I am lawfully seized in fee simple of the granted premises, that they are free from all incumbrances, except a mortgage of 500 dollars given by me to the Athol Savings Bank, that I have good right to sell and convey the same as aforesaid, and that I will and my heirs, executors, and administrators shall warrant and defend the same to the said grantee and his heirs and assigns forever against the lawful claims and demands of all persons. And for the consideration aforesaid, I, Mary H. Partridge, wife of said Maynard Partridge, do hereby release unto the said grantee, and his heirs and assigns, all right of dower to both dower and homestead in the granted premises. In witness whereof, we the said Maynard Partridge and Mary H. Partridge have hereunto set our hand and seal this the first day of March in the year one thousand eight hundred and seventy seven.

Signed, sealed and delivered in presence of
George Woodbury
Henry H. Lamb

Maynard Partridge (seal)
Mary H. Partridge (seal)

Commonwealth of Massachusetts
Worcester, ss. March 12th 1877. Then personally appeared the above named Maynard Partridge and acknowledged the foregoing instrument to be his free act and deed, Before me, A. D. Raymond, Justice of the Peace.
Rec'd for Reg. 5th 1877 at 8 A.M. Ent'd & Ex'd By Nancy B. Wilder Reg.

alston aforesaid, and is bounded as follows, viz – Beginning on the west side of a cart and sled road, on the town road east of the house of said Silas S. Lawes – thence northerly on said cart and sled road, to land on which Benoni Foster now lives – thence south, on land of said Foster, to land of the grantor – thence on land of the grantor, to the said town road – thence on said road, to the place of beginning, being the same which was deeded by the said Holman to the said Lawes. . To have and to hold the afore-granted premises, to the said Seth Holman, his heirs and assigns, to their use and behoof forever. And we do for ourselves – heirs, executors and administrators, covenant with the said Seth Holman, his heirs and assigns, that we are lawfully seized in fee of the afore-granted premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Seth Holman, and that we will warrant and defend the same premises to the said Seth Holman, his heirs and assigns forever, against the lawful claims and demands of all persons. . Provided nevertheless, that if the said Silas S. Lawes, his heirs, executors or administrators, pay to the said Seth Holman, his heirs, executors, administrators or assigns, the sum of Two hundred dollars, in four years, fifty dollars a year, with interest annually, the first fifty in one year from date, then this deed, as also four certain notes, bearing date with these presents, given by the said Silas S. Lawes, to the said Seth Holman, to pay the same sum with annual interest, at the time aforesaid, shall all be void; otherwise shall remain in full force. . In witness whereof, we the said Silas S. Lawes & Lucretia H. Lawes, have hereunto set our hands and seals, this twenty-ninth day of January, in the year of our Lord one thousand, eight hundred and fifty-eight.

Silas S. Lawes. (SEAL)

Lucretia H. Lawes. (SEAL)

Signed, sealed and delivered, in presence of, Gervois Davis – Worcester ss. Jan. 29th 1858. Then the above-named Silas S. Lawes, acknowledged the above instrument to be his free act and deed.

– Before me – Gervois Davis – Just. of Peace.

Rec.d Apr. 12th 1858. at 9h 40m A.M. Ent.d & Ex.d Alex. H. Wilder, Reg.

Holman, Seth &c. to Maynard Partridge. Know all men by these presents, that we Seth and – Newell Holman, of Worcester, County of Worcester, Commonwealth of Massachusetts, & I, Eunice P. Holman, wife of Seth Holman, who join in this deed, in order to comply with the requisitions of Chapter 238, of the Statutes of this Commonwealth, passed in the year 1851, entitled "An Act to exempt from levy or execution the homestead of a householder", in consideration of Four Thousand dollars, paid by Maynard Partridge, of Winchendon, County & State above mentioned, the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey, unto the said Maynard Partridge, his heirs and assigns, a certain tract of land, with the buildings thereon, situate in said Winchendon, viz. [illegible]

Bullock, at a stake & stones – thence east, 98 rods, to a marked hemlock tree – thence up the brook, by land of Elmer Newton, crossing the road leading from Royalston to Fitchburg, to land of Willard Newton – thence westerly, by land of said Newton and Stephen Richardson, to land of Barnet Bullock – thence southerly, by land of said Bullock, to land of said Holman, about 155 rods, to a stake & stones – thence southwesterly, by land of said Barnet Bullock, to the first mentioned corner, containing by estimation, about 64½ acres, be the same more or less.

To have and to hold the above-granted premises, with all the privileges and appurtenances to the same belonging, to the said Maynard Partridge, his heirs and assigns, to his & their use and behoof forever. And we the said grantor, for ourselves and our heirs, executors and administrators, do covenant with the said grantee and his heirs and assigns, that we are lawfully seized in fee-simple of the afore-granted premises; that they are free from all incumbrances; that we have good right to sell and convey the same to the said grantee, and his heirs and assigns forever, as aforesaid; and that we will and our heirs, executors and administrators, shall warrant and defend the same to the said grantee, and his heirs and assigns forever, against the lawful claims and demands of all persons.

In witness whereof, we the said Seth and Newell Holman and Eunice P. Holman, wife of Seth Holman, who for the consideration aforesaid and One Dollar, to me paid by said grantee, the receipt whereof is hereby acknowledged, do hereby release to said grantee – heirs and assigns forever all right of or to a homestead, in or out of said real estate, and also in token of my release of all right and title, of or to dower in the granted premises, have hereunto set our hands and seals, this third day of February, in the year of our Lord eighteen hundred and fifty-eight.

Signed, sealed and delivered,

in presence of,			
J. P. Willis.	}	Seth Holman.	(seal)
		Seth N. Holman.	(seal)
D. P. Foster.		Eunice P. Holman.	(seal)

Commonwealth of Massachusetts – Worcester ss. Feb. 3d 1858. Then personally appeared the within named Seth and Newell Holman, and acknowledged the foregoing instrument to be their free act and deed.

Before me – J. P. Willis – Justice of the Peace.

Rec.d Apr. 12th 1858 at 9h 40m A.M. Smt.d & Sq.d By Alf. H. Wilder, Reg.

Partridge Maynard, to Seth Holman. Qs.

Know all men by these presents, that we Maynard Partridge & Mary H. Partridge, wife of Maynard Partridge, of Winchendon, County of Worcester, State of Massachusetts, in consideration of Twelve hundred dollars, paid by Seth & Newell Holman, of Royalston, County of Worcester, State of Mass. the receipt whereof is hereby acknowledged do hereby give, grant, bargain, sell and convey

Know all men by these presents, that I Seth N. Holman one of the mortgagees named in the within deed of mortgage for and in consideration of the sum of [illegible] dollars and other valuable considerations paid to us by the within named Maynard Partridge, the receipt whereof is hereby acknowledged, do hereby release and discharge the premises described in said mortgage to the said Maynard Partridge, his heirs and assigns forever. In witness whereof I have hereunto set my hand and seal this [illegible] day of [illegible] A.D. 1858.

This presents in order to a mortgage is recorded in Book 527. Page 393.

our presence this twenty third day of August A.D. 1855.

Worcester ss. Aug 23. 1855. } Emory Washburn
Then the above named Washburn & Elliot } Gustavus Elliott
made oath to the truth of the above certificate by them subscribed

Before me. Henry Chapin. Justice of the Peace.

Recd August 29th 1855 at 11h 50m A.M. Ent'd Rec'd By Alex H. Wilder, Reg.

Stoddard Hartford
to
Lavina Forbush.

Know all men by these presents that I Hartford Stoddard of Upton in the County of Worcester and Commonwealth of Massachusetts in consideration of Two Hundred dollars paid by Lavina Forbush of Upton aforesaid Single woman the receipt whereof I do hereby acknowledge do hereby give grant sell and convey unto the said Lavina Forbush her heirs and assigns a certain piece of land situated in the central part of said Upton containing one fourth of an acre more or less and bounded as follows. Beginning by the road leading by the Grantors house to the turnpike at a stake & stones then N. 20° E. 8 rods to a stake & stones. then N 65. W. 5 rods to a stake & stones. then S 25 W. 8 rods to stake & stones by said road then by said road S. 65 E. 5 rods to the first bounds. the three first lines bounding by Grantors land. the said Grantee is to build & maintain the fence on said three lines first mentioned. To have and to hold the aforegranted premises to the said Lavina Forbush her heirs and assigns to her & their use and behoof forever. And I do for myself my heirs executors and administrators covenant with the said Lavina Forbush her heirs and assigns that I am lawfully seized in fee of the aforegranted premises that they are free of all incumbrances that I have good right to sell and convey the same to the said Forbush and that I will and my heirs shall warrant and defend the same premises to the said Forbush her heirs and assigns forever against the lawful claims and demands of all persons. And I Sarah Stoddard wife of the said Hartford Stoddard for the consideration aforesaid do hereby release and quitclaim unto the said Lavina Forbush her heirs and assigns all right claim or possibility of dower in said premises. In witness whereof we the said Hartford Stoddard & Sarah Stoddard have hereunto set their hands and seals this twenty eight day of August in the year of our Lord one thousand eight hundred and fifty five

Signed sealed and delivered in presence of } H. Stoddard (seal)
C. H. Stoddard & N. W. Holbrook } Sarah Stoddard (seal)

Worcester ss. Aug 28th 1855. Then the above named Hartford Stoddard acknowledged the above instrument to be his free act and deed.

Before me. Nahum W. Holbrook. Just. of Peace.

Recd August 29th 1855 at 1h P.M. Ent'd Rec'd By Alex H. Wilder, Reg.

Holman Seth
to
Seth N. Holman.

Know all men by these presents that I Seth Holman of Royalston in the County of Worcester and Commonwealth of Massachusetts in consideration of four thousand dollars paid by Seth Newell Holman of said Royalston the receipt whereof is hereby

acknowledged do hereby give grant bargain sell and convey unto the said Seth N. Holman his heirs and assigns one undivided half of the following lots or tracts of land lying in said Royalston. Viz. The home lot so called bounded as follows. Beginning at the southeast corner at a marked hemlock tree on the west side of Lawrence brook by land of Jonas Peirce thence west by land of Jonas Peirce and George Peirce to the corner of the wall. Thence northerly and easterly by land of Jonas Peirce to a corner, thence northerly by land of said Jonas Peirce to land of Stephen and Franklin Richardson, thence east by land of said Richardsons to a stake and stones, thence east by land of Elmer Newton to the said Lawrence brook, thence southerly on said brook to the place of beginning with one undivided half of all the buildings thereon and one undivided half of all privileges and appurtenances thereto belonging. Said tract is supposed to be about sixty three acres more or less. Also another tract or lot of land situated near the center of said Royalston called the Joseph Sawyer place containing about seven acres of land and is bounded on the east by lands of George and Jonas Peirce, thence from the northeast corner by land of John Fry to the road running by said Fry's house thence southerly on the east side of said road and crossing said road westerly and taking in the land I own on the west side of the road which is bounded by land of Ashbel Goddard, thence from the south line of said piece of land eastwardly and crossing said road and on lands of Leonard Wheeler, Charles H. Newton and Joseph Letabrook to the southeast corner of said lot with all buildings thereon and privileges thereto belonging, that is meaning one undivided half of said buildings and privileges. Also the Eager lot so called containing about seventeen acres and is bounded as described in a deed from Benjamin Fry conveying the same to me the said Seth Holman. Also one undivided half of the pine and hemlock tree and timber that I own standing & lying on land in the westerly part of Royalston which I reserved when I bargained the land to Zelotes Lawes. Also one undivided half of all the tree and timber standing and lying on land of Peter Woodbury in the south part of Royalston called the Howe lot with the same privilege and time for getting off the same as I held by virtue of a deed from said Woodbury. Also meaning to convey with the aforenamed premises to the said Seth N. Holman one undivided half of all the machinery, fixtures and tools belonging to the grist mill, sawmill and furniture shop on said tracts of land & privileges meaning to here convey to my son the said Seth N. Holman one undivided half of all the real estate and stock of lumber unmanufactured and manufactured with the stock of cattle and horses farming tools and other articles of personal property that I now own excepting and reserving my house hold furniture and provisions. To have and to hold the above granted premises with all the privileges and appurtenances to the same belonging to the said Seth N. Holman his heirs and assigns to his & their their use and behoof forever. And I the said Seth Holman for myself and my heirs executors and administrators do covenant with the said Seth N. Holman his heirs and assigns that I am lawfully seized in fee simple of the aforegranted premises that they are free from all incumbrances that I have good right to sell and convey the same

to the said Seth N. Holman his heirs and assigns forever as aforesaid and that I will and my heirs executors and administrators shall warrant and defend the same to the said said Seth N. Holman – heirs and assigns forever against the lawful claims and demands of all persons. In witness whereof I the said Seth Holman and Eunice – Holman the wife of said Seth Holman in token of her release of all right and title of or to dower in the granted premises have hereunto set our hands and seals this twenty first day of April in the year of our Lord eighteen hundred and fifty five

Signed Sealed and delivered in presence of Barnet Bullock. — Seth Holman (seal) Eunice P. Holman (seal)

Worcester S.S. April 21st 1855. Then personally appeared the within named Seth Holman and acknowledged the foregoing instrument to be his free act and deed. Before me Barnet Bullock. Justice of the Peace.

Recd August 29th 1855 at 3h 10m P.M. Entd & Exd. By Alex. H. Wilder. Regr.

Holman Seth to Seth N. Holman

Know all men by these presents that I Seth Holman of Royalston in the County of Worcester and State of Massachusetts in consideration of One hundred dollars paid by Seth N. Holman of Royalston aforesaid the receipt whereof I do hereby acknowledge do give grant sell and convey unto the said Seth N. Holman his heirs and assigns one undivided half of a certain tract of land lying in Ftzwilliam, County of Cheshire and State of New Hampshire and being the same land which was conveyed to me by Russell Morse of said Royalston to said deed reference can be had for a more line and bounds. To have and to hold the aforegranted premises to the said Seth N. Holman his heirs and assigns his and their use and behoof forever. And I do for myself – heirs executors and administrators covenant with the said Seth N. his heirs and assigns that I am lawfully seized in fee of the aforegranted premises that they are free of all incumbrances that I have good right to sell and convey the same to the said Seth N. Holman and that I will warrant and defend the same premises to the said Seth N. – heirs and assigns forever against the lawful claims and demands of all persons. In witness whereof we the said Seth Holman and Eunice – Holman wife of said Seth Holman in testimony of relinquishing her right of dower in the premises have hereunto set our hands and seals this twenty first day of April in the year of our Lord one thousand eight hundred and fifty five

Signed Sealed and delivered in presence of Barnet Bullock, Dexter Underwood — Seth Holman (seal) Eunice P. Holman (seal)

Worcester S.S. April 21. 1855. Then the above named. — acknowledged the above instrument to be his free act and deed.

Before me. Barnet Bullock. Justice of Peace.

Recd August 29th 1855 at 3h 10m P.M. Entd & Exd. By Alex. H. Wilder. Regr.

Dexter Wards to John W. Phipps

Fitchell Seth to Sullivan G. Proctor.

Know all men by these presents that I Seth Fitchell of Fitchburg in the County of Worcester Commonwealth of Massachusetts Yeoman in consideration of Four

of stones thence E. 43½ N. 14 rods to heap of stones thence N. 39 E. 35½ rods
to heap of stones on Princeton line by Reuben Hales land thence on said
line partly by said Hales and partly by Isaac Hartwells land. S. 42½ W. 29 rods
to a heap of stones by S. Ruggles land thence by said land S. 57 E. 36¾ rods
to the first mentioned bound. —— To have and to hold the above
granted premises to the said Benjamin Holden his heirs and assigns
to his and their use and behoof forever and I do covenant with the
said Benjamin Holden his heirs and assigns that I am lawfully
seized in fee of the aforegranted premises that they are free of all
incumbrances and that I will warrant and defend the same
premises to the said Benjamin Holden his heirs and assigns
forever against the lawful claims and demands of all persons.
In witness whereof we the said Moses and Mary my wife in
testimony of her relinquishing all her right of dower and power
of thirds of in and into the above described premises to him the
said Benjamin Holden his heirs and assigns have hereunto set
our hands and seals this eleventh day of february in the year
of our lord one thousand eight hundred and nineteen
signed sealed and delr. in presence of us — Moses Baxter (seal) — Mary Baxter (seal)
Joseph Mason } Worcester ss February 24th 1819 then the above named
Moses Smith } Moses Baxter acknowledged the above instrument
to be his free act and deed before me, Charles Hirich Just. of Peace
Recd April 15 1823 Bart Examd By Arts. Ward, Regr.

Holman John to Seth Holman

Know all men by these presents that I John Holman of Roy-
alston in the County of Worcester and Commonwealth of Massa-
chusetts yeoman in consideration of nine Thousand dollars
paid by Seth Holman of Royalston aforesaid Gentleman
the receipt whereof I do hereby acknowledge do hereby give grant
sell and convey unto the said Seth Holman his heirs and assigns
a certain tract or parcel of land situate and lying near the centre
of the town of Royalston aforesaid containing by estimation
three hundred and eighteen acres to be the same more or less and
bounded as follows viz beginning at the northwest corner by the
road leading from Royalston Meeting house by Ebenezer Frys
at a stake & stones by said Frys land thence easterly & northerly
on land of said Fry to a stake & stones by land of Timothy Rich-
ardson thence east & North about one hundred rods to the
brook running from Moores Mills to Nichols Mills thence south-
erly on said brook to a marked tree on the bank of said brook since
east to a marked tree by land of Nathan B. Newton thence
southerly turning and running westerly a corner by said Newtons
& Isaac Prouty to a corner near a brook fence thence turning and

More to Israel

running westerly by land by land of Beace Prouty and Stephen Batchelor
to a stake and stones by land of Joseph Estabrook Esq. thence northwest-
erly on said Estabrook's land to a stake and stones thence westerly by
said Estabrooks land to a stake and stones thence northerly by land
of said Estabrook and John Eaton to the road running from
Royalston. Royalston. Melinghouse to. E. B. Newton thence cross-
ing said Road and running west on the north side of said road
to the first mentioned road thence northerly on said road to the
bounds first mentioned with all the privileges and appurtenances
there unto belonging. —— To have and to hold the aforegranted prem-
ises to the said Seth Holman his heirs and assigns to his and their
use and behoof forever and I do covenant with the said Seth Hol-
man his heirs and assigns that I am lawfully seized in fee of the
aforegranted premises that they are free of all incumbrances that I
have good right to sell and convey the same to the said Seth
Holman and that I will warrant and defend the same prem-
ises to the said Seth Holman his heirs and assigns forever against
the lawful claims and demands of all persons. In witness whereof
I the said John Holman with Mary my wife in testimony of
relinquishing her right of Dower in said premises have hereunto
set our hands and seals this twenty ninth day of December in
the year of our lord one thousand eight hundred and twenty-
signed sealed and delivered John Holman (Seal)
in presence of us Molly Holman (Seal)
Franklin Gregory } Worcester ss. December 29th 1822 then the
Joseph Estabrook } above named John Holman acknowledged
the above instrument to be his free act and deed before me
Joseph Estabrook Just of Peace
Recd April 15 1823. Entd & Exam^d By. Wm. Heard, Reg^r.

Morse John
to
Hazael Wiley
.....

Know all men by these presents that I John Morse of Sutton County of
Worcester Yeoman in consideration of four hundred dollars paid by
Hazael Wiley of Winchendon County aforesaid Husbandman the
receipt whereof I do hereby acknowledge do hereby give grant sell and
convey unto the said Hazael Wiley his heirs and assigns a certain tract
of land lying in winchendon County of Worcester being lot one Hun-
dred and thirty one and is the same lot which I the said John
Morse purchased of Josiah Howe February 4. 1815 containing eighty
acres more or less always reserving to me my heirs and assigns
two acres and six rods at the north bounds of said lot. —— To
have and to hold the aforegranted premises to the said Hazael Wiley
his heirs and assigns to his and their use and behoof forever and I do
for myself my heirs executors and administrators covenant with the
said Hazael Wiley his heirs and assigns that I am lawfully seized

1850'S HOUSE

FORMER MILL POND

EXPOSED INTACT DAM WALL

EDGE OF ROAD BERM/STONE RETAINING WALL

FORMER MILL POND

N / F
JOHN W. MORSE III
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DRILL HOLE

DRILL HOLE

NW EDGE OF ROAD

WATERWHEEL PIT

EDGE OF ROAD

DAM

EDGE OF ROAD
BRIDGE

DAM

LONG HOUSE

EXISTING SHED

FOUNDATION OF HOUSE

SAW MILL (1906)

FEATURE 1 (stone floor)

STACK TO BOILER

STONE WALL on RIVER BANK

RETAINING WALL

NE CORNER OF SAWMILL

TAILRACE

COMPANY WAGON SHED

BARN

N / F
DANA H. PERKINS
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POSSIBLE END OF SAWMILL BEGIN RETAINING WALL

BARN

FOUNDATION

STONE

BRICK and STONE

HORSE BARN

HORSE BARN

WATERWHEEL / TURBINE PIT WALL

LAWRENCE BROOK

END OF TAILRACE

PAL surveyed/documented mill features

Exposed Dam Retaining Wall

Mill Pond Retaining Wall

Mill Foundation Remains

0 5 30 60ft
0 5 10 15m

Source/Revision/Issue	Date
PAL modified: Mill feature photo locations	03-27-13
Map source: Gannett Fleming, Inc.	06-22-12

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Project
MassDOT No. 3 Royalston Bridge

Date
March 2013

Figure 5-3. Site plan of mill features developed during site examination mapping, Royalston Bridge Replacement project.