ABSTRACT

AHS conducted a Phase IA Archaeological Reconnaissance Survey, also known as an Assessment Survey, of the proposed Quinebaug River Technology Park project in Putnam, Connecticut. The survey included documentary research, field walkover and soil-probe survey, in order to assess the relative potential of the project area for containing above-ground historic resources such as mill remains or subsurface archaeological sites from the pre-Contact to late historic periods.

The project area, “APE,” consists of 230 acres on the west side of the Quinebaug River. Approximately half of the project area has been heavily disturbed by gravel extraction. The remaining area is bisected by both gas and power rights-of-way, an abandoned rail line, and paved roads associated with the gravel operation. These features have also resulted in ground disturbances along relatively narrow corridors. Areas of relative archaeological sensitivity and landscape features (such as stone walls, merestones, and other features), including areas of disturbance, were recorded with a Trimble GeoXT sub-meter GPS unit. Two hundred seventy-four points were recorded during the walkover survey, most of which were associated with individual soil probe locations. AHS used its field data in conjunction with state-level soils and surficial geology maps to refine its designated areas of sensitivity, within which Phase IB subsurface testing is recommended. Undisturbed portions of the APE include relatively intact areas of river floodplain and forested terraces and uplands. Some of the uplands have been harvested for timber, but subsurface impacts are believed to have been limited. AHS estimates that ca. 54.5 acres of the ca. 230-acre project area have the potential to contain intact, potentially significant (i.e., National Register-eligible) archaeological sites. These areas are recommended for subsurface Phase IB Archaeological Reconnaissance survey.
LIST OF FIGURES

Figure 1: Project area shown on U.S.G.S. topographic map, Putnam quadrangle
Figure 2: SHPO-identified areas of archaeological sensitivity
Figure 3: Documented archaeological sites within a one-mile radius of the project area
Figure 4: Approximate projection of project area on 1792 Blodgett map
Figure 5: Approximate projection of project area on 1869 Peterson Collection map
Figure 6: Approximate projection of project area on 1856 Woodford Map
Figure 7: Project area on 1895 U.S.G.S. Putnam quadrangle
Figure 8: Phase IA GPS positions taken
Figure 9: Areas of archaeological sensitivity
I. INTRODUCTION AND SCOPE OF WORK

A. Introduction

The Town of Putnam, with assistance from the State of Connecticut, is planning to develop a regional technology park on 230 acres on the west side of the Quinebaug River (Figure 1). Because the project involves state funding, it must comply with the Connecticut Environmental Protection Act (CEPA), which requires the preparation of an Environmental Impact Evaluation (EIE) in order to assess the proposed project’s impacts to potentially significant cultural resources (i.e., archaeological and historical resources such as above-ground ruins or structures and below-ground Native American or post-European contact archaeological site remains). GZA GeoEnvironmental, Inc. (GZA) is preparing the EIE on behalf of the Connecticut Department of Economic and Community Development (DECD). GZA contracted with Archaeological and Historical Services, Inc. (AHS) to conduct a Phase IA Archaeological Reconnaissance Survey of the project area, or Area of Potential Effect (APE). The Phase IA survey, also known as an assessment survey, evaluated the potential of the APE for containing cultural resources that may be eligible for listing in the National Register of Historic Places, and made recommendations for further archaeological investigation in the form of Phase IB survey, inclusive of systematic subsurface testing to confirm areas of assessed archaeological sensitivity. The results of the Phase IA Survey are presented in this report.

The APE consists of 230 acres on the west side of the Quinebaug River. Railroad tracks form the western border, the southern end lies along Carpenter Brook, a Quinebaug tributary, and the northern border is near the extant water pollution control facility and Exit 95 off Interstate Route 395.

The State Historic Preservation Office (SHPO) recently assisted the DECD in its scoping for the Environmental Impact Assessment of the project (Forrest 2012). In its comments, SHPO noted that “a substantial area located in the southern half of the project site has been subject to significant alterations,” mostly related to sand and gravel quarrying on the Quinebaug River floodplain and terrace. The 1955 flood also caused damage in the project area. However, SHPO also opined that discrete sections of the project area likely retain archaeological sensitivity, particularly for Native American archaeological resources. The SHPO therefore requested that a professional archaeological reconnaissance survey be completed in the portions of the project area which appear, based on SHPO review of aerial photographs, to retain archaeological potential. These areas, which SHPO depicted on a USGS topographic map collectively total ca. 52 acres (Figure 2).

An archaeological reconnaissance survey typically is comprised of two stages: Phase IA, in which background research and walkover survey refine archaeological sensitivity, and Phase IB, in which subsurface testing is done to refine sensitivity assessments. Because Phase IB is labor-intensive and expensive, however, AHS conducted only the Phase IA survey at this time. As SHPO noted

“Due to the complex land use history and record of substantial flooding, we anticipate that further refinement of the proposed testing areas may be warranted subsequent to the completion of the background research and pedestrian survey phases of the reconnaissance survey. We therefore recommend that the Town’s archaeological consultant contact our office for additional guidance before implementing the subsurface testing of the areas delineated in the attached map. No construction should be initiated until the State Historic Preservation Office has had an opportunity to review and comment upon the completed survey” (Forrest 2012).
AHS conducted the Phase IA assessment survey in August of 2012. The survey was conducted in accordance with the Connecticut SHPO’s *Environmental Review Primer for Connecticut’s Archaeological Resources* (hereafter *Primer*).
ATTACHMENT:
AREAS OF RECOMMENDED ARCHAEOLOGICAL TESTING OUTLINED IN RED
QUINEBAUG REGIONAL TECHNOLOGY PARK - PUTNAM

Figure 2: SHPO-identified areas of recommended archaeological sensitivity.
B. **Scope of Work**

The purpose of an assessment survey is to identify above-ground historic resources and intact landscapes of potential archaeological sensitivity. Recommendations are then made for a Phase IB subsurface shovel-test-pit reconnaissance survey. Under consultation with the SHPO, the Phase IB survey is then designed and implemented to identify all cultural resources (inclusive of below-ground, archaeological sites and above-ground historic resources) which may be affected by the proposed project. The assessment survey included background research, walkover inspection and soil-probe sampling, and synthesis of data to identify and evaluate areas of sensitivity for archaeological resources.
II. SURVEY TASKS

The Phase IA survey tasks are outlined below.

Task 1. Background Research. AHS reviewed cultural resource management reports on archaeological surveys conducted in the project area, in Putnam, and in nearby areas along the Quinebaug River. The reports include a 2012 bridge/access road survey (Raber 2012), AHS affiliate PAST’s archaeological survey of the Putnam River Trail just to the north of the project area (Soulsby et al. 1996) and AHS’s 2008 survey of the Water Pollution Control Facility at the northern tip of the project area (Forrest and Clouette 2008). This survey identified a pre-Colonial site (Site 116-19), but it was too disturbed to merit listing in the National Register of Historic Places. The site did, however, corroborate the pre-Colonial sensitivity of the APE.

In addition to reading cultural resource management reports and checking the SHPO/Office of State Archaeology (OSA) archaeological site files, AHS updated the pre-Colonial and historic-period contextual research. Historic maps and town histories were reviewed and updated GIS data analyzed.

Task 2. Walkover Survey. AHS conducted a walkover inspection of the entire project area in order to assess the potential for intact subsurface archaeological sites to be present. Particular attention was paid to SHPO-identified sensitive areas (see below). Areas of visible graveling or other deep disturbance were carefully noted as having low/no archaeological sensitivity and appropriately mapped; there is virtually no chance for such areas to contain intact, informative archaeological remains. Areas of questionable soil integrity, based on visual inspection, aerial survey and USDA soil classification, were evaluated with one-inch-diameter hand-powered soil probes. Areas of apparent relatively intact soils were also probed to confirm soil integrity and related archaeological sensitivity. Areas of potential historic-period sites, as evidenced from historic maps, were checked for above-ground remains, such as foundations. Such areas typically contain associated archaeological components that may prove significant. The areas of relative archaeological sensitivity and landscape features, including areas of disturbance, were recorded with a Trimble GeoXT sub-meter GPS unit. The data were differentially corrected, exported to GIS format and mapped onto project plans.

Task 3. Subsurface Testing Recommendations. In this report, AHS refines the areas of archaeological sensitivity which warrant Phase IB subsurface shovel-test-pit survey, in our opinion. AHS has consulted with SHPO for additional guidance before making the final Phase IB Reconnaissance Survey recommendations. The SHPO initially estimated that ca. 52 acres within the project bounds were potentially archaeologically sensitive and likely warranted subsurface testing. Based on the walkover survey and historic research, AHS has substantiated, but somewhat refined this estimate and recommends that ca. 54.5-acres should undergo Phase IB shovel-test-pit survey (see section V below).

Task 4. Data Analysis and Report Preparation. AHS prepared this report describing the survey methodology and results in graphic and narrative form. Phase IB archaeological reconnaissance survey, that is, shovel-test-pit-sampling, is recommended in areas of moderate/high sensitivity based in part on SHPO consultation and refined by the results of this study.

Approximately half of the project area has been heavily disturbed by gravel extraction. The remaining area is bisected by both gas and power rights-of-way, an abandoned rail line and paved
roads associated with the gravel operation. These features have also resulted in ground disturbances along relatively narrow corridors. Remaining portions of the APE include relatively intact areas of river floodplain and forested terraces and uplands. Some of the uplands have been harvested for timber, but subsurface impacts are believed to have been limited. AHS estimates that ca. 54.5 acres of the ca. 230-acre project area have the potential to contain intact, potentially National Register eligible archaeological sites. These areas are recommended for subsurface Phase IB Archaeological Reconnaissance survey as discussed below.
III. BACKGROUND RESEARCH

A. Environmental Context

The purpose of this section is to provide general information on the environmental context of the project area. Even in a small state such as Connecticut, significant variations in topography, climate, and geology on the local level are expressed in many subtle and not-so-subtle ways. Variations in habitat can yield complex and dynamic mosaics of distinctive plant and animal communities. Humans, like most species, are sensitive to these variations, and can be generally expected to settle in areas providing both reliable and predictable resources. While climate change over the course of the last 11,000 years has repeatedly transformed the environment in the Northeast, many basic characteristics of the landscape itself have remained relatively stable. Local geology and topography present important controls on the development and potential organization of habitats, and thus provide archaeologists with one means of identifying enduring features of the landscape around which people in the past would have organized themselves.

A.1 Surficial Geological Context

The project area falls within the Iapetos Terrane and is underlain by bedrock members of the Tatnic Hill Gneiss and Quinebaug Formations (Rogers 1985). Both formations contain complexly folded metamorphic rocks, including primarily schist and gneiss. Fine-grained Plainfield Quartzite, an important lithic resource used by Native groups in the manufacture of stone tools, outcrops less than five miles east of the project area. The majority of the soils within the project area have developed on Putnam Deposits associated with a terminal glacial-age sediment-dammed pond that filled this portion of the Quinebaug Valley during deglaciation, about 15,000 years ago. During that time, an esker feature developed within the APE, now evident as a steeply-sided long ridge running adjacent to the river in the northern portion of the APE. The highest-elevation upland area soils are developed on older glacial thick till sediments, flanked by thin tills. More recent soils have formed during the past 10,000 years on floodplain deposits along the river’s edge.

A.2 Soil Context

Natural Resource Conservation Service (NRCS) mapping of the soil units within the project area and aerial photographs indicate that much of the APE has been subject to prior ground disturbance, primarily through large-scale gravel operations of the 20th century. The soils within existing gravel quarries can now be classified as udorthents, meaning that the existing near surface sediments have been displaced (i.e., they are fill deposits) or that the naturally developed soils have been truncated (cut). Remaining soils consist of fourteen other varieties, most consisting in areas of less than five acres in total extent. The most common soils within the APE are Hinckley gravelly sandy loam (90 acres), Canton and Charlton soils (55 acres), Suncook loamy fine sand (17 acres), Gloucester gravelly sandy loam (16 acres), Occum fine sandy loam (14 acres), and Rippowam fine sandy loam (12 acres). The Rippowam, Occum and Suncook series consists of deep, poorly drained loamy soils formed in alluvial floodplain sediments. Coarser-grained Hinckley and Gloucester series gravelly loams are associated with glacial lake deposits. Cobbly Canton and Charlton soils are associated with upland till areas.

Despite the upland-dominated character of the APE, many portions of the project area are underlain by well-drained relatively level sediments that would have been suitable for habitation during the Native American and early historic periods on the west bank of the Quinebaug River. Our soil probes established that many portions of the APE are mantled in very fine, deep, redeposited aeolian (wind-blown) sediments deposited after the drainage of the sediment-dammed pond. These soils are considered to have a high sensitivity for archaeological resources. Areas
where these sediments occur include broad areas of gentle slope in the northwestern portion of the APE and numerous small, probable kame terraces along the flanks of otherwise steep hills. Broader, relatively level areas dominated by fine sediments could have supported larger settlements and potentially agricultural fields during the Late Woodland, Contact and early historic periods. Smaller terraces were more likely used as short-term game-monitoring stations throughout the Archaic and Woodland periods (see Section B below).

The Quinebaug River has a history of violent floods (see Section IV), and it was confirmed through soil probes that some floodplain deposits within the project area have been affected by erosion and are unlikely to contain intact archaeological resources.

A.3 Climatic Context

Climatic conditions within Connecticut demonstrate considerable variability. Interior regions of the state, most notably the northwestern and northeastern highlands, experience greater seasonal contrasts than southern areas along Long Island Sound and the Central Valley. In general, the mean annual temperature in northeastern portions of the state is one to two degrees cooler than the Connecticut River Valley and coastal areas, with extreme temperature differences in shorter duration. The average climatic conditions for the northeastern region are as follows: average annual temperature is 48 degrees Fahrenheit, mean summer temperature is about 68 degrees, while mean winter temperature is about 28 degrees. Average annual precipitation is about 44 inches and mean snowfall is 50 inches. The average frost-free growing season is 155 days (Dowhan and Craig 1976).

A.4 Ecological Context

The ecological context of the project area, including geology, soils, and climate, indicates that a variety of habitats and resources of economic importance were available to prehistoric and early historic populations. The diversity of landscapes, with upland areas appropriate for hunting and the gathering of forest resources and lowland areas with complex riparian wetland habitats, provided a wealth of opportunities for both foragers and early farmers.

Generally speaking, the relatively rugged uplands of Northeastern Connecticut provided excellent hunting opportunities for mobile foragers, but were somewhat less well-suited for large-scale community-based farming settlements. The relatively short growing season (compared to the coast and central valley regions) and increased potential for unpredictable killing frosts appear to have resulted in a population shift towards the Connecticut River Valley and the coast after the introduction of maize ca. 1000 AD. Northeastern Connecticut also lacks the broad and rich alluvial landscapes of Connecticut River Valley that were particularly conducive to the growth of maize and other early cultigens.

Nevertheless, the APE and adjacent region provided an environment rich in terrestrial game, freshwater fish, and economically important wild plant species. Native groups living in the Putnam area likely relied more heavily on fishing and hunting than their contemporaries to the west and south and derived their daily sustenance from a broader range of local plants and animals. The largest single factor that likely brought prehistoric Native Americans to this area was the Quinebaug River, the largest watercourse in the region. The river and its major tributaries would have presented not only important food resources, but also major transportation corridors that linked the local area to both interior and coastal landscapes and people. The project area is located less than a mile downstream of Cargill Falls. Before the industrialization of present-day Putnam and the creation of the first Cargill Falls Dam, this natural waterfall would have been a prime fishing location, particularly during runs of shad and eels in the spring and salmon in the fall.

The following section summarizes the regional prehistory in order to better understand local and regional prehistoric land use.
B. Regional Prehistory - Cultural Context

B.1 Paleoindian Period (11,000-9,500 BP) (Before Present)

In the Northeast, the Paleoindian Period dates from 11,000 to 9,500 BP, during the final glacial period known as the Younger Dryas. This was a time marked by a return to severe glacial conditions (McWeeney 1999). The earliest archaeological evidence for human occupation in the New England region dates to approximately 11,000 BP (Spiess, Wilson and Bradley 1998) and in Connecticut to around 10,200 BP (Moeller 1980; Jones 1999). Sites from this period are characterized by distinctive fluted points and flaked stone assemblages dominated by unifacial tools. The exploitation of a wide range of food resources, including small and large game, fish, wild plant foods, and perhaps extinct megafauna is assumed, but poorly documented (Meltzer 1988; Jones 1998). Caribou is believed by most archaeologists to have played a significant, if seasonal, role in subsistence. The archaeological record suggests a settlement system based on small, highly mobile social groups exploiting dispersed seasonally available resources.

Data reflecting Paleoindian Period land use patterns and subsistence activities in the Northeast is relatively scarce (Spiess, Wilson and Bradley 1998). Few intact Paleoindian sites have been found in Connecticut. Only two have been investigated and published in detail: the Templeton Site in Washington (Moeller 1980, 1984) and the Hidden Creek Site on the Mashantucket Pequot Reservation in Ledyard (Jones 1997). A handful of other sites have received more cursory attention. State archaeologist Nicholas Bellantoni states that about 50 fluted points have been recovered as isolated finds across Connecticut (Bellantoni 1995). The scarcity of sites indicates that population density was likely very low at this time. Poor site visibility (meaning the sites are difficult to find) is also likely a factor of small site size and a high degree of landscape disturbance over the past 10,000 years.

B.2 Archaic Period (10,000-2,700 BP)

The Archaic Period dates from 10,000 to 2,700 BP in the Northeast and is characterized by generalist hunter-gatherer populations utilizing a variety of seasonally available resources. The period is subdivided into the Early, Middle and Late Archaic Periods on the basis of associated changes in environment, projectile point styles and inferred adaptations (Snow 1980; McBride 1984). Each sub-period is discussed briefly below.

B2.1 The Early Archaic Period (9,500-8,000 BP). Pollen evidence indicates a gradual trend toward a warmer climate beginning around 10,000 BP (McWeeney 1999). By this time Pleistocene megafauna had disappeared, leaving modern game species such as moose, muskrat and beaver. Deer may not have become abundant until the end of this period when oak began to dominate upland forests. Plant and animal resources may have become more predictable and abundant as the climate stabilized, permitting Early Archaic populations to exploit a somewhat wider range of seasonal resources. Population density appears to have remained low during this period, as reflected in the poor representation of Early Archaic sites in the regional archeological record. This low representation could be due in part to changing environmental conditions which have deeply buried, inundated or destroyed many early sites by erosion, or to the difficulty of recognizing Early Archaic assemblages (Funk 1997; Jones 1998).

Stone tool assemblages dating to the Early Archaic period have been recovered from several sites in the Northeast and indicate that this period can be characterized by a number of distinct episodes. Archaeological assemblages dating to the period between 9,500 and 9,000 BP appear to
reflect both the persistence of locally developed Paleoindian traditions and the arrival of southern Piedmont Tradition Early Archaic influences. Sites dating to this span are rarer than those of the preceding Paleoindian Period. A quartz lithic industry in which projectile points are extremely rare occurs locally between roughly 9,000 and 8,500 BP as demonstrated at the recently excavated Sandy Hill site in the Mashantucket Pequot Reservation (Forrest 1999). This site produced evidence of multiple semi-subterranean living structures and a variety of plant food remains including abundant cattail root and hazelnuts (Jones and Forrest 2003). The period between 8,500 and 8,000 BP witnessed the establishment of a temperate forest-adapted culture utilizing bifurcate-based projectile points typically manufactured from non-regional materials (Jones 1998, 1999). The Dill Farm Site in East Haddam is one of the best-documented bifurcate sites in Connecticut (Pfeiffer 1986). Archaeological investigations at this site have identified cooking/refuse features, quartz flakes, retouched tools, bifurcate-based projectile points, and subsistence remains including charred nuts and mammal bone associated with a radiocarbon date of 8560 +/- 270 BP.

B.2.2 The Middle Archaic Period (8,000-6,000 BP). Pollen evidence indicates a trend toward a warmer, drier climate in this period as well as the development of alluvial terraces along the state's major river systems (Jones 1999). Most modern nut tree species established themselves during this period providing a new food resource for both human foragers and many game animals including deer, turkey and bear. Evidence of Middle Archaic Period occupation in Connecticut is more widely documented than for the preceding periods and indicates specialized seasonal activity in different resource zones during a period of population increase (McBride 1984; Jones 1999). The development of grooved axes suggests the increased importance of wood as a raw material, while the presence of pebble netsinkers on some regional sites implies a growing reliance on marine and riverine resources (Dincauze 1976; Snow 1980).

Despite their relative abundance, sites in Connecticut have yielded limited information on Middle Archaic subsistence and land use patterns (Jones 1999). Archaeological assemblages are characterized by the presence of Neville and Stark projectile points and large flake tools. The settlement pattern appears oriented at least seasonally toward large upland interior wetlands (McBride 1984; Jones 1999). The data suggest seasonal re-use of such locales over a long period of time. This pattern is evident at the Dill Farm site and those around the Great Cedar Swamp on the Mashantucket Pequot Reservation (Jones 1999). Coastal and riverine sites may be poorly documented because of rising sea levels that have resulted in deep alluvial burial.

B.2.3 Late Archaic Period (6,000-2,700 BP). The Late Archaic Period in the Northeast is characterized by an essentially modern distribution of plant and animal populations. This period is often considered a time of cultural fluorescence, as reflected by evidence for burial ritual, population increase, and long-distance exchange networks (Dincauze 1975; Snow 1980; Ritchie 1994; Cassidy 1999). The Late Archaic Period is one of the best-known temporal sequences in southern New England, and is characterized by three major cultural traditions: the Laurentian (ca. 5,500-4,200 BP), the Narrow-stemmed (ca. 4,700-3,700 BP), and the Susquehanna (ca. 3,800-2,700 BP). Sites dating to this period are common throughout the state, although the time span between ca. 6,000 and 5,000 BP remains poorly documented. During most of this period, large, revisited seasonal settlements are located in riverine areas and along large wetland terraces while smaller, more temporary and special-purpose sites are situated in the interior and uplands (Ritchie 1969a and b, McBride 1984; Cassidy 1997, 1999). The nature and distribution of sites suggest aggregation during summer months, with seasonal dispersal into smaller groups during the cold weather (McBride and Dewar 1981).

A transition in settlement and perhaps subsistence patterning appears to occur with the local establishment of the Susquehanna Tradition between 3,800 and 2,700 BP (sometimes called the
Terminal Archaic period). A number of technological innovations are associated with this period. These include the manufacture of steatite bowls and the earliest use of cord-marked and grit-tempered ceramics. Lithic assemblages typically contain high proportions of exotic chert and other non-local lithics such as argillite, rhyolite and felsite. Regionally available quartzite were commonly used as well, but the use of local quartz became uncommon at this time. Settlement appears to have shifted from floodplains to upper river terraces along major rivers (McBride and Dewar 1981). Large Susquehanna Tradition sites have also been reported along the margins of large interior lakes and marshes (McBride and Soulsby 1989). The interior and uplands appear to have been used less extensively (McBride 1984). Many Susquehanna Tradition cremation burials have been found in the Northeast (Dincauze 1968; Robinson 1996; Leveillee 1999). Archaeologists continue to debate whether these cultural attributes signal the large scale migration of new peoples to the region or represent the transformation of local cultures through the adoption of new technology and cultural beliefs (see e.g. Robinson 1996: 38-39).

B.3 The Woodland Period (2,700-450 BP)

The Woodland Period is characterized by the increased use of clay pottery, celts, adzes, and exotic raw materials as well as the introduction of bow and arrow technology, smoking pipes and horticulture (Feder 1984, 1999; Lavin 1984). An increase in site size and complexity suggests a trend toward greater sedentism and social complexity, probably the result of an increase in the population base, particularly at the end of this period (McBride and Dewar 1987; Lavin 1988). The Woodland Period has been traditionally subdivided into Early, Middle, and Late periods on the basis of ceramic styles, settlement and subsistence patterns, and political and social developments (Ritchie 1969a and b; Snow 1980; Lavin 1984). Despite these changes, most recent scholars see the Woodland as a period well-rooted in the traditions and lifeways of the preceding Archaic period (Feder 1984, 1999).

B.3.1 The Early Woodland Period (2,700-2,000 BP). Early Woodland regional complexes are generally characterized by stemmed, tapered, and rare side-notched projectile point forms; thick, grit-tempered, cord-marked ceramics; tubular pipe-stones; elaborate burial ritual; and suggestions of long-distance trade/exchange networks (Lavin 1984; Juli 1999). The Early Woodland period remains poorly understood, and is poorly represented in the archaeological record relative to the preceding phases of the Late Archaic. This may be the result of shifts in settlement which promoted the formation of larger, but fewer seasonal aggregation camps. It is possible that incipient horticulture focused on native plant species such as goosefoot (Chenopodium sp.) had begun by this time (George 1997). This economic development may have brought formerly scattered groups together within the major river valley lowlands where floodplain weeds thrive. The existence of stone pipes suggests the trade of tobacco into the region had been established by this time.

B.3.2 The Middle Woodland Period (2,000-1,200 BP). The Middle Woodland Period is characterized by increased ceramic diversity in both style and form, continued examples of long-distance exchange, and at its end, the introduction of tropical cultigens (Dragoo 1976; Snow 1980; Juli 1999). Much of our current knowledge of the Middle Woodland Period in southern New England is extrapolated from work done by Ritchie (1994) in New York State. Ritchie noted an increased use of plant foods such as goosefoot (Chenopodium sp.), which he suggested had a substantial impact upon social and settlement patterns. George (1997) has recently reiterated this hypothesis for the Middle Woodland of Connecticut. Ritchie further noted an increased frequency and size of storage facilities during the Middle Woodland Period, which may reflect a growing trend toward sedentism (Snow 1980; Ritchie 1994). At this time jasper tool preforms imported from
eastern Pennsylvania appear to be entering the region through broad exchange networks (Luedtke 1987).

Settlement patterns in Connecticut indicate an increased frequency of large sites adjacent to tidal marshes and wetlands along the Connecticut River, a decrease in large upland occupations, and a corresponding increase in upland temporary camps (McBride 1984). This may indicate reduced residential mobility from earlier time periods and is likely due to the development of modern tidal marshes in low-lying riverine areas by 2,000 BP. The tidal marshes would have supported a wide variety of terrestrial and aquatic animal and plant resources, allowing longer residential stays (McBride 1984).

**B.3.3 Late Woodland Period (1,200-450 BP).** This period is characterized by the increasingly intensive use of maize, beans, and squash; changes in ceramic technology, form, style, and function; population aggregation in villages along coastal and riverine locales; the eventual establishment of year-round villages; and the use of the upland-interior areas by small, domestic units or organized task groups on a temporary and short-term basis. The settlement pattern suggests a trend toward fewer and larger villages near coasts and rivers. It has been hypothesized that these changes can be attributed to the introduction of maize, beans, and squash, but it is unclear how important cultigens were in the aboriginal diet of southern New England groups, especially those with access to coastal resources (Ceci 1980; McBride 1984; McBride and Dewar 1987; Bendremer and Dewar 1993; Ritchie 1994; Chilton 1999). Although sites clearly demonstrate the use of tropical cultigens in the Connecticut River Valley, wild plant and animal resources were still a primary component of the aboriginal diet. The use of imported cherts increases over time in the Connecticut River valley, suggesting possible social, economic, and/or political ties to the Hudson Valley region. Ceramic style affinities also suggest western ties at this end of this period (Feder 1999).

**B.4 Contact - Early Historic Period**

By the 1630s, when direct European contact was felt throughout Connecticut's coasts and larger rivers, Native Americans were organized in groups of small households which banded together along ethnic and territorial lines in larger villages during the spring and summer and dispersed during other seasons (Roger Williams, 1643 - reprinted 1997). These small groups engaged in hunting, fishing, and gathering of wild plant foods, and maize horticulture. During the Contact period, trapping of beaver and other fur-bearing animals was an important economic activity. In the late prehistoric and contact periods, settlement was focused on or adjacent to the floodplains of the major tributaries, reflecting the importance of agricultural activities, fishing, and access to transportation and communication routes (Pagoulatos 1990). Shifts in settlement and the increased development of maize agriculture are likely a result of contact with the Europeans. Planting in the spring and capture of anadromous fish at waterfalls and choke points brought together households. Upland areas continued to be used for hunting, trapping, and gathering from the late summer through the winter by the component household groups of the larger village-based communities.

**B5. Previously Reported Prehistoric Archaeological Sites**

Review of the OSA and SHPO site files indicate that there are thirteen previously reported archaeological sites within an approximate one-mile radius of the Project Area (see Table 1). Because reporting archaeological sites to the state is a voluntary process, the site files are an important, but not complete, resource. Site 116-15 (Figure 3) is a Middle Archaic site, identified near the junction of River Road and Route 44 (Pomfret Street), approximately 0.6 mile north of the project area. The site yielded a single quartz Stark projectile point, a heat-treated “flint” (chert)
scraper, and lithic debitage. Its size is estimated at approximately one acre and it is interpreted as a fishing station along the Quinebaug River. Site 116-16 was identified just 700 feet south of Site 116-15 and is interpreted as an Early Archaic-period fishing camp. We note that no Early Archaic diagnostic artifacts are listed on the site form, so the age estimate must be viewed as speculative. Both of these sites were identified during the construction of the existing residential and office buildings along River Road and both were found on the same river terrace.

Recent archaeological surveys of the water pollution control facility just north of the APE (Forrest and Clouette 2008) yielded prehistoric-period artifacts. These include a total of ten quartzite flakes, two chert flakes and three quartz fragments. The small lithic assemblage collected during the archaeological investigation indicates that a prehistoric site was once present within the facility’s upgrade area. The low artifact density suggests that the site itself was relatively small, or that the higher-density sections of the site were removed by earlier construction and other earthmoving activities in the area. The flakes include three distinct lithic materials: local quartz and quartzite, and exotic chert. The chert does not occur naturally within eastern Connecticut and is rarely represented in bedrock formations anywhere in southern New England. This material was likely transported to the site from distant sources in present-day New York or Vermont. The movement of such stone across the ancient landscape was likely focused along navigable waterways such as the Quinebaug River. The small flakes of chert found at the site, and others in the vicinity, indicate that the people in the region had access to this exotic material, most likely through trade partnerships.

The most recent and pertinent archaeological survey in the project vicinity was the Technology Park Access Bridge project conducted by Raber Associates in 2012 (Raber 2012). The tested area lies within the project bounds assessed in this report. The Native American site sensitivity was recognized by the SHPO in its 2010 review of a proposed access road and new bridge over the Quinebaug, within the current project area. The SHPO recommended that a Phase I Archaeological Reconnaissance Survey be undertaken of the proposed bridge project to identify any pre-Colonial sites which may be present in the bridge/access road area (Bahlman 2010), in which the Quinebaug had been rechanneled. Raber Associates’ reconnaissance survey of the bridge/access road (Raber 2012) found no archaeological remains in the 12 shovel test pits excavated in the proposed bridge/access road area (along a single 180-meter transect). Intact soils were identified, however. The small bridge/access road survey area is only a fraction of the current project area and the absence of pre-Colonial sites in the channelized river area does not mean the remainder of the project area is not archaeologically sensitive. Any portions of the 230-acre project area that have not been pervasively, deeply disturbed are likely to retain archaeological sensitivity based on its riverine location.

The project area overall is in an area of high pre-Colonial Native American site sensitivity, largely tied to use of the Quinebaug River and its tributaries for fishing, transportation and trade purposes. Many pre-Colonial sites have been reported from Quinebaug River terraces and floodplains. The apparent “absence” of reported site from within the project area is not reflective of a lack of archaeological sensitivity in undisturbed areas; rather it reflects the lack of extensive professional archaeological survey in the project area.

Table 1: Reported archaeological sites within a ca. 1-mile radius of the project area.

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<tr>
<th>Site</th>
<th>Town</th>
<th>Age</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Location</td>
<td>Time Period</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>112-3</td>
<td>Pomfret</td>
<td>Middle Archaic</td>
<td>PAST (AHS) Phase I survey, 1990. Quartzite Neville point, quartzite flakes (84) ad quartz.</td>
</tr>
<tr>
<td>112-5</td>
<td>Pomfret</td>
<td>Unknown</td>
<td>PAST (AHS) Phase I survey, 1990. Quartzite flakes (193) and quartz.</td>
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<td>112-6</td>
<td>Pomfret</td>
<td>Unknown</td>
<td>PAST (AHS) Phase I survey, 1990. 1 quartzite flake.</td>
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<td>69-2</td>
<td>Killingly</td>
<td>Late Archaic</td>
<td>PAST (AHS) Phase I survey, 1988. Wading River point, chert, quartz and quartzite flakes.</td>
</tr>
<tr>
<td>116-15</td>
<td>Putnam</td>
<td>Middle Archaic</td>
<td>River Road I Site found during archaeological walkover survey, 1978. Quartz Stark Stemmed point, chert and quartz flakes.</td>
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<tr>
<td>116-16</td>
<td>Putnam</td>
<td>Early Archaic?</td>
<td>River Road II Site found during archaeological walkover survey, 1978. Chert scraper and quartz flakes. Unclear why the site was designated as Early Archaic.</td>
</tr>
<tr>
<td>116-18</td>
<td>Putnam</td>
<td>Middle Archaic</td>
<td>Lake Road Lateral Site identified during Phase I and II testing by Garrow Associates in 1998. Neville point, biface fragments, retouched flakes, fire-cracked rock, 102 flakes of quartzite, quartz and jasper.</td>
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**B6. Implications of the Known Regional Prehistory for Project Area Sensitivity**

Background research suggests that prehistoric use of the project area may have ranged from short-term camps (i.e., stays of one to five days) to temporary encampments (i.e., stays of five to 30 days). The use of the landscape probably included hunting, plant gathering, and fishing along the Quinebaug River, with hunting, plant-gathering and possible small-scale farming in the uplands. Evidence of prehistoric short-term camps has been found in a broad range of topographic and ecological settings, including the landform on which the existing APE is located. The varied settings of these archaeological sites reflect the long period of aboriginal settlement in the region and the wide range of resources exploited by Connecticut’s Native American populations. Game-animal locations were influenced by topography, surface water features, and shifting forest ecology. Larger terrestrial game species such as white-tailed deer and turkey were dependent on mast resources, and were likely concentrated where acorns, hickories, and other nut trees were locally abundant. Fishing stations are likely most common at natural impoundments or falls that would have concentrated target species. As the climate changed through time and as river courses evolved in response to internal and external forces, the density of both plant and animal resources shifted to reflect local conditions.

It is important to note that although small isolated archaeological sites are very often interpreted as “hunting camps” in the archaeological literature, prehistoric-period Native American use of the landscape included a much broader range of activities that may be associated with isolated archaeological finds. Not all of these activities were focused on hunting or even the gathering of plant foods; they may be living areas or spiritual sites.
IV. HISTORICAL BACKGROUND RESEARCH RESULTS

A. Historical Context

The Quinebaug River is intimately linked with Putnam's history. Putnam, which did not exist as an independent town until 1855, first began to emerge as a distinct entity because of a series of manufacturing enterprises clustered around Cargill Falls, a natural waterfall cascading over a ledge in the river just north of Pomfret Street (Route 44). Later, the river was extensively exploited for water power for Putnam's numerous cotton, woolen, and silk mills. Finally, the river played a major role in shaping the appearance of present-day Putnam as a result of the extensive damage caused by the Flood of 1955.

Prior to the first textile mill, Cargill Falls had been exploited for the type of manufacturing enterprises that characterized the then-prevalent agrarian economy. The first gristmill was established as early as 1730; in 1760 it was purchase by Benjamin Cargill, who added a distillery, trip-hammer shop, scythe-sharpening shop, and butter churning operation. Saw and linseed-oil mills were added to the enterprises at the falls by around 1800, all powered by the swift-flowing Quinebaug.

In 1807, Connecticut's first mechanized cotton mill was erected at the Falls by the Pomfret Manufacturing Company, a firm led by Rhode Islander Smith Wilkinson, Samuel Slater's brother-in-law. At this time, the Falls area was known as Pomfret Factory or Pomfretville. With houses for the mill's operatives, a mill store, and a schoolhouse in which religious services were also conducted, the area became a small village. Two turnpikes established in the early 19th century, the north-south Norwich & Worcester Turnpike and the east-west Pomfret & Killingly Turnpike, converged at the Falls and added to the village's accessibility and commercial prosperity.

Other textile enterprises soon followed the Wilkinson mill. In 1830 James Rhodes, one of the investors in the Pomfret Manufacturing Company and also a Rhode Islander, built his own dam and mill upstream, marked today by a 3 ½-story brick clerestory-roofed mill dating from 1841; he was joined by G. C. Nightingale, who built a cotton mill just downstream from the Rhodes Mill in 1846. Across the river M. S. Morse and Co. built a mill in 1846, and Hosea Ballou built a mill and dam north of Providence Street in 1847. Each mill became the focal point of a small mill village, with its attendant worker houses, store, and other buildings (most of the owners' residences were some distance away on higher ground).

The industrial expansion of Putnam, coupled with the commercial growth engendered by the coming of the Norwich and Worcester Railroad in 1839, made residents of the area increasingly aware of the need for their own schools, fire department, and other services. The State Legislature finally granted residents' wish for independent status by carving out a new town in 1855 from Pomfret, Thompson, and Killingly, choosing to name it after Connecticut's most eminent Revolutionary War hero, Israel Putnam (who came from Pomfret), rather than Quinebaug, which had been the residents' first choice.

The town's economy continued to prosper in the post-Civil War period. Industrial additions included large factories for the Monohansett mills (1868) and Hammond and Knowlton silk mill (1885) on Canal Street, the Powhatan mill next to the Ballou mill on Providence Street (1872), and numerous smaller non-textile enterprises, including shoe and box factories, machine shops and forges. A second railroad, the Air Line, ran through Putnam on its way between Boston and New Haven beginning in 1872. Putnam acquired many of the features of a small city, including numerous churches, a central business district with multi-story brick commercial blocks, a newspaper, street lamps, and sidewalks. Surrounding the commercial area were extensive residential neighborhoods, some catering to the mercantile and supervisory classes and some made up of tenements rented out to the immigrants, increasingly French Canadian, who provided the labor for Putnam's many mills.
Most of the central area of the town was incorporated as a separate city government in 1895, an arrangement that lasted until consolidation in 1983.

Although the growth rates of the 1870s and 1880s were never equaled, the early 20th century saw numerous improvements in Putnam, including a large modern grammar school in 1902 (Israel Putnam School), a new high school in 1911 (no longer extant), and an elaborate memorial bridge on Pomfret Street erected to honor veterans and the city's war dead in 1925. The good times came to an end with the Depression of the 1930s, during which many companies closed for long periods and others moved their operations to the south. Those that remained generally employed fewer hands than earlier. Most of Putnam's millworker houses were sold off into private ownership at this time. A flood in 1936 and the Hurricane of 1938 damaged many industrial properties, further depressing local employment.

The worst disaster occurred on August 19, 1955, when the rain-swollen Quinebaug surged from its banks and overran all the low-lying areas of Putnam. The flood introduced several feet of mud and water into virtually every textile mill along the river, and flooded or swept away numerous bridges, commercial buildings, and houses as well. In the course of the event, several mill buildings were damaged by water, others caught fire and burned, and everywhere there was left a layer of silt that took weeks to remove. Many businesses, including some of the mills, never re-opened, and the Air Line, one of two railroad lines that converged in Putnam, was never rebuilt. Putnam's population reached an all-time high of 9,304 in 1950, a figure that has yet to be regained.

Today much of the river reflects the flood and reconstruction activities undertaken in the years immediately following. The present in-town shopping center, for example, was a redevelopment that took advantage of a large flood-cleared parcel at the north end of the downtown commercial district. Similarly, the park-like river banks along Kennedy Drive and Church Street and the modern fire and police headquarters, Sons of Zion Synagogue, and state courthouse are post-flood replacements for the dense riverside development shown in 19th-century and early 20th-century maps and views. Ironically, these largely open spaces are re-creating Putnam's earlier existence as a series of loosely connected nodes centered around mill sites, a pattern that disappeared with the commercial and industrial growth of the late 19th century. The course of the river itself has been altered as it passes through central Putnam, eliminating one sharp curve below Providence Street and shifting another to the west just north of Pomfret Street.

Most of Putnam's historic mills remain, at least in the form of later enlargements and rebuilds of the first mills, and two, the Morse Mill and the oldest part of the Pomfret Manufacturing Company, are reckoned as Connecticut's earliest remaining textile mills. Even the site of the Ballou Mill north of Providence Street, which burned during the flood (it was then being used for magnesium-ignited explosives), is discernible by stone foundations and raceways. A few features, such as the headrace that paralleled Canal Street, are now completely obscured or destroyed, as is the three-story wooden Hammond & Knowlton silk mill (c.1885) that stood along the canal.

The former rail line that borders the west edge of the project area had its beginnings in 1849 as a plan to link the Massachusetts industrial towns of Southbridge and Blackstone. Before it began construction, the Southbridge & Blackstone Railroad merged with other short lines to become the Boston & New York Central Railroad. In 1854, the B&NYC completed a line from Blackstone to Mechanicsville in the town of Thompson, Connecticut, but four years later, the company ceased operations. After a lull, the line was purchased by the Boston, Hartford & Erie Railroad, which finally extended the tracks to Southbridge (in 1867) and Willimantic (1872). From 1872 to 1955, the railroad line adjacent to the project area was part of the so-called “Air Line” route between Boston and New York City, hosting such fabled passenger trains as the New England Limited, called the “Ghost Train” because it was painted all white, and the Eastern States Express. From 1895 on, the route was controlled by the New York, New Haven & Hartford system. On August 9, 1955 the
disastrous flood that destroyed much of downtown took out the railroad bridge across the Quinebaug River just north of the project area, severing the line. The bridge was never rebuilt, and this portion of the line was officially abandoned in 1959.

No buildings or other structures are shown within the project area or its immediate vicinity on any of the maps reviewed for this project. The cartographic sources consulted include Blodgett (1792) (Figure 4), an 1869 map of Putnam (original provenance unknown) from the Peterson Collection at Homer Babbage Library, Storrs (Figure 5), Woodford's 1856 Map of Windham County (Figure 6), and the USGS Putnam 15 Minute Quadrangle (surveyed 1895) (Figure 7).
B. Expectations for Historic-Period Cultural Resources within the Project Area

Based on the historic period background research, it appears that historic-period use of the project area was primarily limited to agrarian pursuits, such as pastures, planting fields, or woodlots, and construction activity related to the development of the rail line along the project area’s western margin. Upland areas of the APE were used as pasture and woodlots. These forms of land use likely resulted in a degree of soil erosion and sediment loss that may have affected the integrity of both Native American and historic-period sites. Rail-related construction activity resulted in significant cut-fill actions along the project area’s western boundary. Archaeological sites predating this activity would have been destroyed, but there is a possibility that the remains of work camps related to rail construction may exist along the eastern margin of the rail line within the APE, though none are noted in the historic documents examined.

Any expectation of archeological remains within floodplain sections of the APE must contend with the effects of flood waters, both from the 1955 flood and earlier large freshets, such as that of 1886. From photographs and accounts of the 1955 episode, it is known that floods entailed at least four actions that would tend to complicate the recovery of meaningful archaeological material along floodplain sections of the river:

- the sweeping action of the water carried away whole buildings and undoubtedly many other types of physical material as well, possibly depositing them far from their original context;
- the floods deposited thick layers of silt over the existing ground level;
- clean-up efforts included massive re-grading of affected areas, such as the filling in of the Monohansett Canal along Canal Street.
- the course of the river has shifted. In some cases, the current river banks formerly were in the middle of the channel, and thus must have been formed from fill that was introduced to direct the river in a particular course. Similarly, other areas that formerly were river banks, and thus might contain evidence of human activity, are now under water.
V. RESULTS OF THE WALKOVER SURVEY

AHS conducted the walkover survey portion of the assessment survey during August of 2012. The purpose was to identify intact landscapes of potential archaeological sensitivity and make recommendations for a Phase IB subsurface shovel test-pit reconnaissance survey. Under consultation with the SHPO, the reconnaissance survey will then be designed and implemented to identify all cultural resources (inclusive of below-ground, archaeological sites and above-ground historic resources) which may be affected by the proposed project. The APE consists of about 230 acres of woodlands, small wetlands, floodplains and gravel quarry, approximately half of which has been heavily disturbed by the gravel extraction. Areas of the APE are also bisected by both gas and power rights-of-way, an abandoned rail line, and paved roads associated with the gravel operation. These features have also resulted in ground disturbances along relatively narrow corridors. Undisturbed portions of the APE include relatively intact areas of river floodplain and forested terraces and uplands. Some of the uplands have been harvested for timber, resulting in some erosion, but subsurface impacts are believed to have been limited.

Senior archaeologist Brian Jones and staff archaeologist Eric Pomo conducted a walkover inspection of the entire project area in order to assess and refine the potential for intact subsurface archaeological sites to be present. Particular attention was paid to SHPO-identified sensitive areas. These areas of projected sensitivity were reproduced from a graphic provided by the SHPO’s office (Figure 2). The image was digitized, incorporated into a GIS project and geo-referenced. The resulting polygon shape-file was then uploaded into a Trimble GeoXT GPS unit to provide real-time positioning in the field relative to these potential high sensitivity areas. Stephen Lecco, Senior Environmental Planner with GZA GeoEnvironmental, Inc. provided a GIS shape-file of the project bounds. This was also uploaded into the GPS unit so the project limits could be accurately noted in the field at all times as well.

Areas of visible graveling or other deep disturbance were carefully noted as having low/no archaeological sensitivity and so mapped, as there is virtually no chance for such areas to contain intact, informative archaeological remains. Areas of questionable soil integrity, based on visual inspection, aerial survey and USDA soil classification, were directly evaluated with one-inch-diameter hand-powered soil probes. Areas of apparent relatively intact soils were also probed to confirm soil integrity and related archaeological sensitivity. No historic-period homesteads are evidenced from historic maps or aerial photography, though the APE was carefully checked for above-ground remains that might predate the 19th and early 20th-century records. The areas of relative archaeological sensitivity and landscape features (such as stone walls, mere-stones, and other features), including areas of disturbance, were recorded with a Trimble GeoXT sub-meter GPS unit. The data were differentially corrected, exported to GIS format and mapped onto project plans. Two hundred seventy-four points were recorded during the walkover survey, most of which were associated with individual soil probe locations (Figure 8).

Based on the results of the Phase IA walkover, AHS was able to refine the SHPO’s estimated areas of archaeological sensitivity, which had been map-based only. In some cases, the SHPO’s areas of concern proved to be more disturbed than suspected, in particular in southwestern portions of the APE where vegetation had returned to some previously graveled areas, and in the north, where gas and power lines had impacted relatively wide rights-of-way, as had the construction of the rail bed. Elsewhere, the SHPO’s recommendations were in good accordance with observations made in the field, such as the alluvial floodplain in the eastern central region of the APE. Here, deep A-horizon sediments were found to cap deeply-buried, intact weathered B-horizon soils. AHS also verified an area of pervasive flood-related soil reworking north of this area dominated by gray, silty sediments of relatively recent origin in a heavily turbated sediments. North of this zone, along the
Quinebaug, an extensive intact terrace was identified and is considered very archaeologically sensitive. Along the western bounds of this central portion of the APE, the SHPO noted a ca. 8-acre area of sensitivity. Overall, AHS believes that the area should be tested in Phase IB survey, but identified smaller noncontiguous zones of sensitivity where soils remain intact in this rather stony, forested landscape.
Figure 8: Phase IA GPS Positions Taken
Quinebaug River Tech Park
Putnam, Connecticut
Scale: 1:12000
Where the SHPO noted three smaller areas of sensitivity in the northwestern portion of the APE in the forested uplands, AHS combined them into a larger overall area of moderate to high sensitivity. Some portions of the landscape here expressed deep aeolian (windblown) sediments of high sensitivity. As elevation increases to the south in this area, the soils become stonier and less ideal for settlement, but the hill flank would have provided an excellent setting for an early historic farmstead. No traces of household ruins, and very few stone walls, were noted in the area, with the exception of a mounded earth feature that may prove to be a remnant chimney fall, or is simply a tree-throw feature. The rail bed lies along the western margins of the APE here, and subsurface testing is recommended in some areas along the line to determine if camps associated with rail-construction teams might remain.

The northern portion of the APE includes a high, sandy terrace over a low-lying wetland. The area is covered in pines and expressed intact, deep aeolian sediments that have high archaeological sensitivity. South of the wetland, areas of pine forest had intact soils that are considered very sensitive. Portions of this area have been impacted by gas-line construction, however, and are not recommended for testing. An esker runs from the wetland’s east flank southeast through the APE. The esker ridge itself is extremely stony and is not considered to have archaeological potential, but smaller terraces along its flanks do have deep, sandy sediments that are considered to have high sensitivity. A low terrace lies east of the esker ridge along the course of the relocated Quinebaug River. Though the river did not originally run by this location, it lies close enough to its ancient course to have been very attractive to Native American hunters and fishers in the area. The eastern bank of the river in this area is designated as disturbed, redeposited fill sediments in state-level soils records and is not recommended for testing, in agreement with SHPO’s original recommendations.

AHS used its field data in conjunction with state-level soils and surficial geology maps, as well as wetlands data in an Environmental Constraints plan provided by GZA Geoenvironmental, Inc. to refine its final areas of recommended Phase IB subsurface testing. Areas of recommended testing are not evenly distributed throughout the property. The northern portion of the APE, the area lying north of the first gravel operation, includes an estimated 30.4-acres of testable area, or 32% of this 95-acre portion of the project area. The southern two heavily graveled parcels within the APE include only ca. 2 testable acres out of 68 acres, or just 3% of the total area. Though the areas of recommended Phase IB testing differ in detail from those projected by the SHPO, they remain very close to the original estimated extent. Based on these data, AHS estimates that ca. 54.5 acres of the ca. 230-acre project area have the potential to contain intact, potentially National Register eligible archaeological sites (Figure 9). These areas are recommended for subsurface Phase IB Archaeological Reconnaissance survey as discussed below. This figure falls very close to the SHPO’s original estimate of ca. 52 acres.
Figure 9: Areas of Archaeological Sensitivity
Quinebaug River Tech Park
Putnam, Connecticut
Scale: 1:12000
VI. CONCLUSIONS AND RECOMMENDATIONS

Per SHPO request, AHS has consulted with SHPO for additional guidance before making final Phase IB Reconnaissance Survey recommendations. The SHPO initially estimated that ca. 52 acres within the project bounds were potentially archaeologically sensitive and likely warranted subsurface testing. Based on the walkover survey, state-level soils data and historic research, AHS has substantiated and somewhat refined this estimate of the area recommended for testing. We suggest that ca. 54.5-acres should undergo Phase IB shovel test pit survey to identify archaeological sites that may be impacted by future undertaking on the property. SHPO/Primer standards mandate shovel test pit excavation at intervals no greater than 15 meters between pits. This fifteen-meter interval translates to a minimum of 18 shovel test pits per acre. AHS estimates that approximately 1000 test pits would be required to meet SHPO/Primer standards during the Phase IB subsurface testing portion of the survey of the entire property.
VII. REFERENCES CITED

Bahlman, David

Bellanti, Nicholas

Bendremer, Jeffrey and Robert Dewar

Ceci, Lynn

Chilton, Elizabeth

Dincauze, Dena


Dowhan, J.J. and R.J. Craig

Dragoo, Don

Feder, Ken

Forrest, Daniel T.
2012  Letter from Daniel Forrest, SHPO, to Nelson Tereso, DECD, regarding comments on the revised proposal for the Quinebaug Regional Technical Park, Putnam, Connecticut, June 8, 2012


Forrest, Daniel and Bruce Clouette

George, David

Jones, Brian D.


Jones, Brian D. and Daniel T. Forrest

Juli, Harold

Karr, Ronald D.
Pepperell, Mass.: Branch Line Press.

Lavin, Lucianne

Luedtke, B.E.

McBride, K.

McBride, Kevin and Robert Dewar


McBride, K. and M. Soulsby

McWeeney, L.

Meltzer, D.J.

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