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VIA ELECTRONIC MAIL AND HAND DELIVERY

March 30, 2007

The Honorable Daniel Caruso, Esq.
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

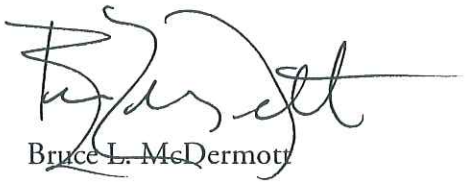
Re: **Petition 784** - Petition of Plainfield Renewable Energy LLC for a Declaratory Ruling that No Certificate of Environmental Compatibility and Public Need Is Required for the Construction, Maintenance, and Operation of a 37.5 MW Wood Biomass Staged Gasification Generating Project in Plainfield, Connecticut

Dear Chairman Caruso:

I enclose an original and 20 copies of Plainfield Renewable Energy LLC's responses to the Siting Council's third set of interrogatories. Response to interrogatories 19 – 23 and 25 – 31 are provided and the response to interrogatory 24 will be provided in the near future.

Please do not hesitate to call me should you have any questions concerning this filing.

Very truly yours,



Bruce L. McDermott

Enclosure

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Interrogatory CSC-19

Plainfield Renewable Energy LLC
Petition 784

Q-CSC-19: Would plant emissions meet all State of Connecticut air quality standards?

A-CSC-19: Yes. Based on the results of the Air Quality Impact Analysis, submitted to CTDEP on December 7, 2006, potential emissions from the proposed PRE power plant are demonstrated to comply with all applicable EPA and CTDEP Ambient Air Quality Standards. The air permit application, submitted to CTDEP on August 8, 2006, included demonstrations of compliance with all other applicable EPA and CTDEP emissions standards and other requirements. CTDEP is currently in the process of reviewing these analyses as part of its technical review of the permit application.

Interrogatory CSC-20

Plainfield Renewable Energy LLC
Petition 784

Q-CSC-20: Does any element of the power plant combust fossil fuel? If so, what percentage of the total plant exhaust emissions would be from fossil fuel?

A-CSC-20: The 37.5 MW (net) biomass power plant will not utilize any fossil fuels. 100 percent biodiesel fuel (a non-fossil fuel) will be used for fluidized bed startup purposes and 100% biomass fuels will be used for power generation during normal operating conditions. The only element of the proposed facility that would combust fossil fuel is a small diesel internal combustion engine that will be used to power a 500 kW emergency generator if there is an electrical power interruption to the facility when the biomass power plant is not operating. This generator would be utilized to provide backup lighting and other electrical power needs until the normal power was restored. Consistent with good utility practice, the emergency generator will be operated periodically for testing and maintenance purposes. No more than 1.4% of plant NOx emissions, and probably only a negligible amount, will be from fossil fuel.

Q-CSC-21: Please obtain a final determination from the CTDEP regarding the presence of threatened, endangered, or special concern species at both the Mill Brook Road parcel and the river intake parcel. Report the presence of the whip-poor-will, a state species of special concern, at the Mill Brook Road parcel to the CTDEP.

A-CSC-21: A response has been received from the CTDEP Franklin Wildlife Management Area concerning the two Rare, Threatened, and Endangered Species Reports submitted for the Mill Brook and Packer Road parcels. A copy of this response, dated February 13, 2007, is attached.

In summary, the CTDEP agrees that the Savannah sparrow will not be impacted by the proposed project.

Furthermore, the CTDEP recommends that all ground disturbing construction activity on the sand barren, wetland W2, and wetland W6 be performed between November 1 and April 1. In general, the Project is in agreement with these construction timing requirements, and expects to agree upon modifications with the CTDEP and the U.S. Army Corps of Engineers.

Page 25 of the *Environmental Report – Terrestrial Ecology for a Proposed 37.5 MW Biomass Facility (Facility Siting)* erroneously noted that a whip-poor-will was observed during the site ecological survey. The report should have stated that potentially suitable habitat for this species was observed on the site, but individuals were not. For this reason, the whip-poor-will should be noted as an "expected species" in Table 3-10. The whip-poor-will is a crepuscular species and is most active at twilight, dawn, and on moonlit nights. It would not have been observed during the daylight survey of the site. During their review of the data, the CTDEP has been made aware of the potential presence of a whip-poor-will, and PRE will be making a more formal notification to CTDEP Wildlife and Inland Water Resources Division staff within the next two weeks. The notification will incorporate survey data taken from the 2005 and 2006 northeast nightjar surveys conducted by Dr. Pamela D. Hunt of the New Hampshire Audubon Society, in addition to the site-specific habitat data.

Petition 784
Exhibit CSC-21-1

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRANKLIN WILDLIFE MANAGEMENT AREA
391 ROUTE 32
NORTH FRANKLIN, CT 06254
TELEPHONE: (860) 642-7239

February 13, 2007

Mr. D. Scott Atkin
Anchor Engineering Services, Inc.
75 Nutmeg Lane
Glastonbury, CT 06033
Fax 860-633-8770

re: Ecological Risk Assessment for Plainfield Renewable Energy, LLC Plainfield and Canterbury

Dear Mr. Atkin:

I have reviewed your cover letter, the Environmental Report – Terrestrial Ecology for Proposed 37.5MW Biomass Facility (Report 1) and the Rare, Threatened and Endangered Species Survey for a Proposed 37.5MW Biomass Facility (Report 2) that I received on 12/11/06. I reviewed these documents for survey information, impacts and mitigation measures for the state endangered species, Eastern Spadefoot Toad (*Scaphiopus holbrookii*), the state threatened blue-spotted salamander (*Ambystoma laterale*) and the state species of special concern, Savannah sparrow (*Passerculus sandwichensis*) which occur in the vicinity of this project.

As there will not be any destruction of Savannah sparrow habitat, I concur that this species will not be impacted by this project.

My October 11, 2006 letter indicates that Eastern Spadefoot Toads are most active from June through August and that they are very rarely observed outside of the breeding period. A two day survey in May is inconclusive. Eastern Spadefoot Toad and Blue-spotted salamander habitat occurs on this project site (Report 1 page 40)

The Wildlife Division recommends that all ground disturbing construction work on the sand barren area, the large isolated wetland and the red maple swamp (Report 1, page 41) be conducted during the species' dormant period which is November 1 through April 1 to avoid impacts.

There is an on-going long-term Eastern Spadefoot Toad study being conducted off of Lillibridge Road and Blue-Spotted Salamaders have been documented on Packer Road. Therefore, the Wildlife Division recommends that all ground disturbing construction work on Lillibridge Road and Packer Road be conducted during the species' dormant period which is November 1 through April 1 to avoid impacts.

If you have any additional questions, please feel free to contact me at 860-642-7239. Thank you for the opportunity to comment.

Sincerely,

Julie Victoria, Wildlife Biologist
Franklin Swamp Wildlife Management Area
391 Route 32
N. Franklin, CT 06254

cc: NDDB – 14850, (14470)
J. Dickson
B. Gilmore (DEP-IWRD)

Interrogatory CSC-22

Plainfield Renewable Energy LLC
Petition 784

Q-CSC-22: Is the emergency access road a Town of Plainfield requirement or request?

A-CSC-22: No. The emergency access road was suggested by an engineering firm in the early stages of project development. Please see the response to CSC-23 regarding emergency access.

Q-CSC-23: What other design techniques can be used to avoid/reduce the impact of the emergency access road to Wetland 6? Can the road be relocated or reconfigured to reduce impact? Has PRE considered obtaining the rear portion of the 863 Norwich Road parcel (Lot 28) to accommodate the access road?

A-CSC-23: The impact of the emergency access on Wetland 6 can be eliminated if the emergency access road is eliminated. This could occur without causing operational concerns. Eliminating the emergency access road would reduce the wetlands impacts at the power plant property from 2,200 square feet to 200 square feet. Decker Energy's biomass plants typically do not have two access roads. The Project has had recent discussions with the U.S. Army Corps of Engineers and the CTDEP about eliminating the emergency access road in the project's upcoming applications.

If an emergency access road continues to be included in the project, the impact to Wetland 6 could be reduced in two ways: (i) retaining wall(s) could be built on one or both sides of the road, and (ii) the width of the road can be reduced.

(i) Though more expensive than conventional earth slopes, retaining walls can reduce the width of the earth fill slopes adjacent to the wetlands in the event the emergency access road were to be constructed, thus reducing the area of fill in the wetlands. Constructing the retaining wall would reduce the wetlands impacts at the power plant property by 150 to 200 square feet along the access road.

(ii) The emergency access road could be narrowed to 14 feet wide rather than the initially proposed 16 feet wide, to reduce the area of wetland impact. This would be accomplished by redesigning the access road so that it is tightened up to the property corner of the adjacent lot and minor horizontal and vertical alignment adjustments are made. This redesign would reduce the wetlands impacts at the power plant property by approximately 150 square feet. The Project has had conversations with the owner of the adjacent property, and the owner has indicated an unwillingness to permit an encroachment onto her property for the access road.

Interrogatory CSC-25

Plainfield Renewable Energy LLC
Petition 784

Q-CSC-25: Provide an archaeological survey as requested in the November 2, 2006 correspondence from the Connecticut Commission on Culture & Tourism.

A-CSC-25: Please see the attached report regarding the project (with the exception of the water intake/outfall property) and the State Historic Preservation Office's response to the report. The report for the water intake/outfall property will be completed when the ground thaws. A copy of that report will be provided to the Council upon its completion.

ARCHAEOLOGICAL SURVEY OF THE PROPOSED PLAINFIELD RENEWABLE ENERGY FACILITY, PLAINFIELD, CONNECTICUT

Prepared for:
Plainfield Renewable Energy LLC.
Norwalk, CT

Prepared by:

Mansfield Center, CT
March 2007

Archaeological Survey of the Proposed Plainfield Renewable Energy Facility, Plainfield, Connecticut

Prepared for:
Plainfield Renewable Energy LLC
20 Marshall Street
Suite 300
Norwalk, CT 06854

Prepared by:
Northeastern Archaeology Consultants
Mansfield Center, CT

Nathan Morphew, Principal Investigator

Authored by:
Nathan Morphew

March 2007

Northeastern Archaeology Consultants
28 Woodmont Drive.
Mansfield Center, Ct 06250
860-423-2480

CONTENTS

FIGURES

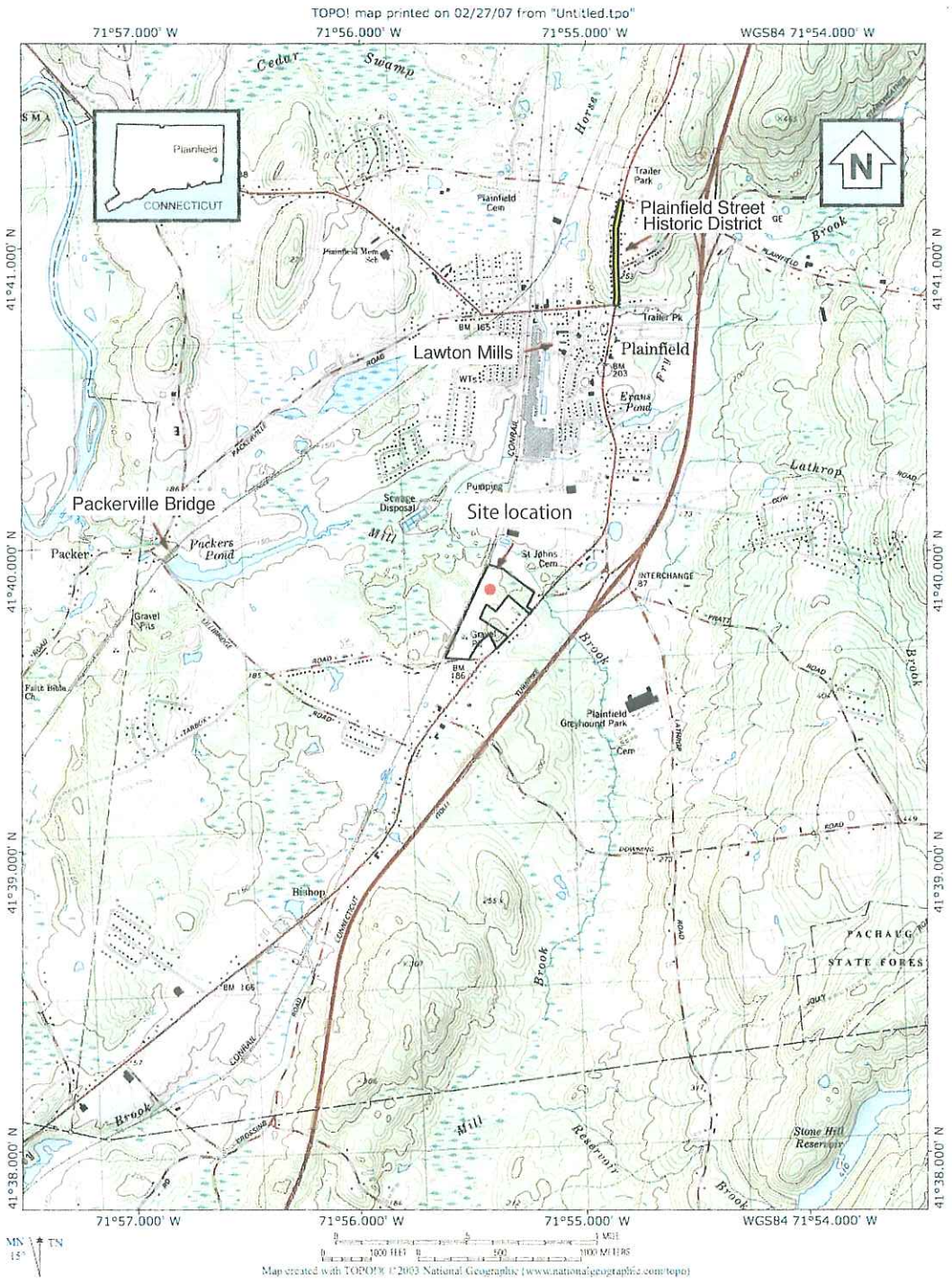
I. INTRODUCTION

The proposed Plainfield Renewable Energy facility is located in the Town of Plainfield, Connecticut, northwest of the intersection of Connecticut Route 12 and Millbrook Road (Figure 1). Northeastern Archaeology Consultants conducted a cultural resource survey of the property February 12, 2007. The property where the site is located is roughly 27.37 acres (Figure 2).

The vast majority of the site has been heavily disturbed by prior activities. The site has been used as a gravel and sand quarry and much of the original soils have been removed and/or heavily disturbed. In the late 1970's the site was used as a disposal site for bulk and drummed chemicals and as a result was listed on the Department of Environmental Protection's (DEP) Inventory of Hazardous Waste Disposal Sites. The remediation of contaminates from the site further impacted the soils of the project area.

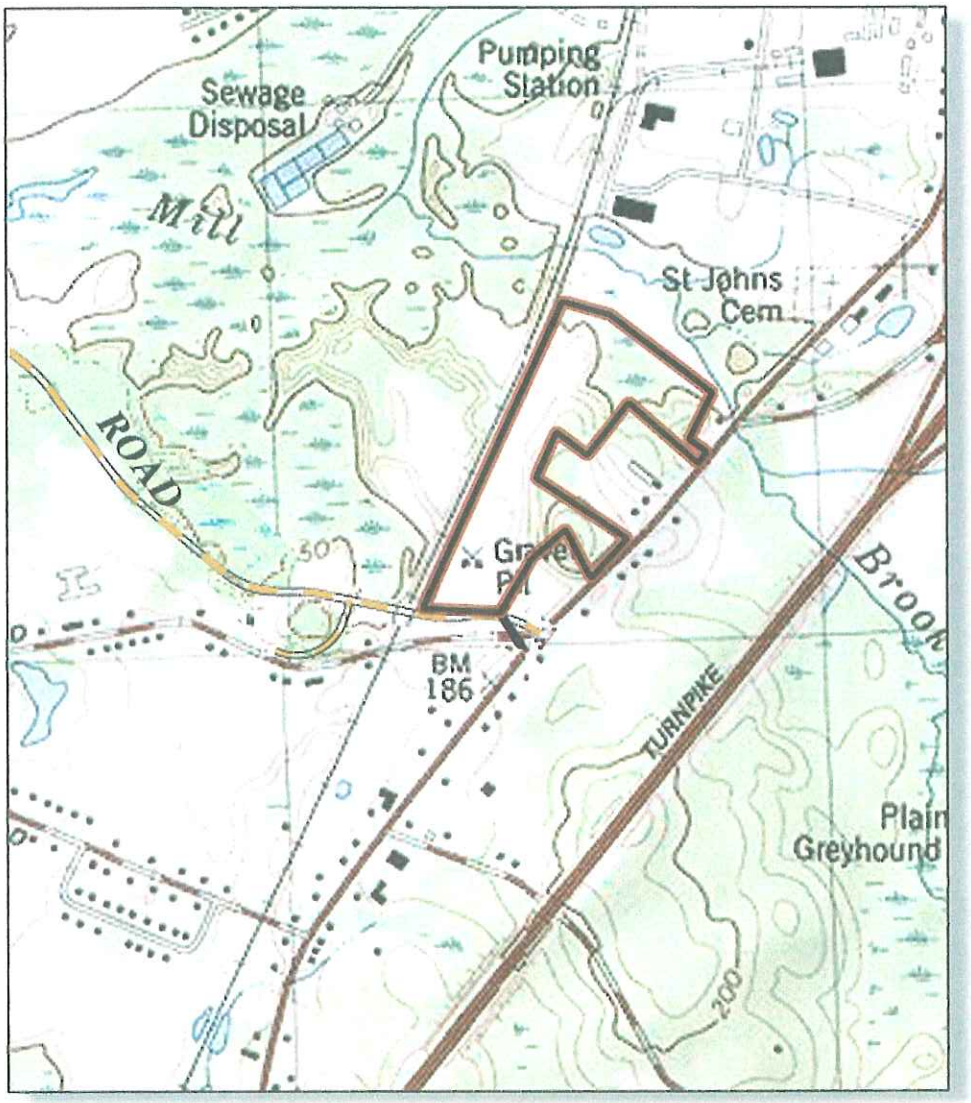
A pedestrian survey of the site revealed no areas within the Area of Potential Effect (APE) for the proposed project that have any archaeological sensitivity. Other than modern material, no cultural artifacts or features were encountered.

No cultural material was recovered during the survey and no archaeological features were encountered. No further cultural resource investigation of the project area is recommended.



NAC Northeastern Archaeology Consultants

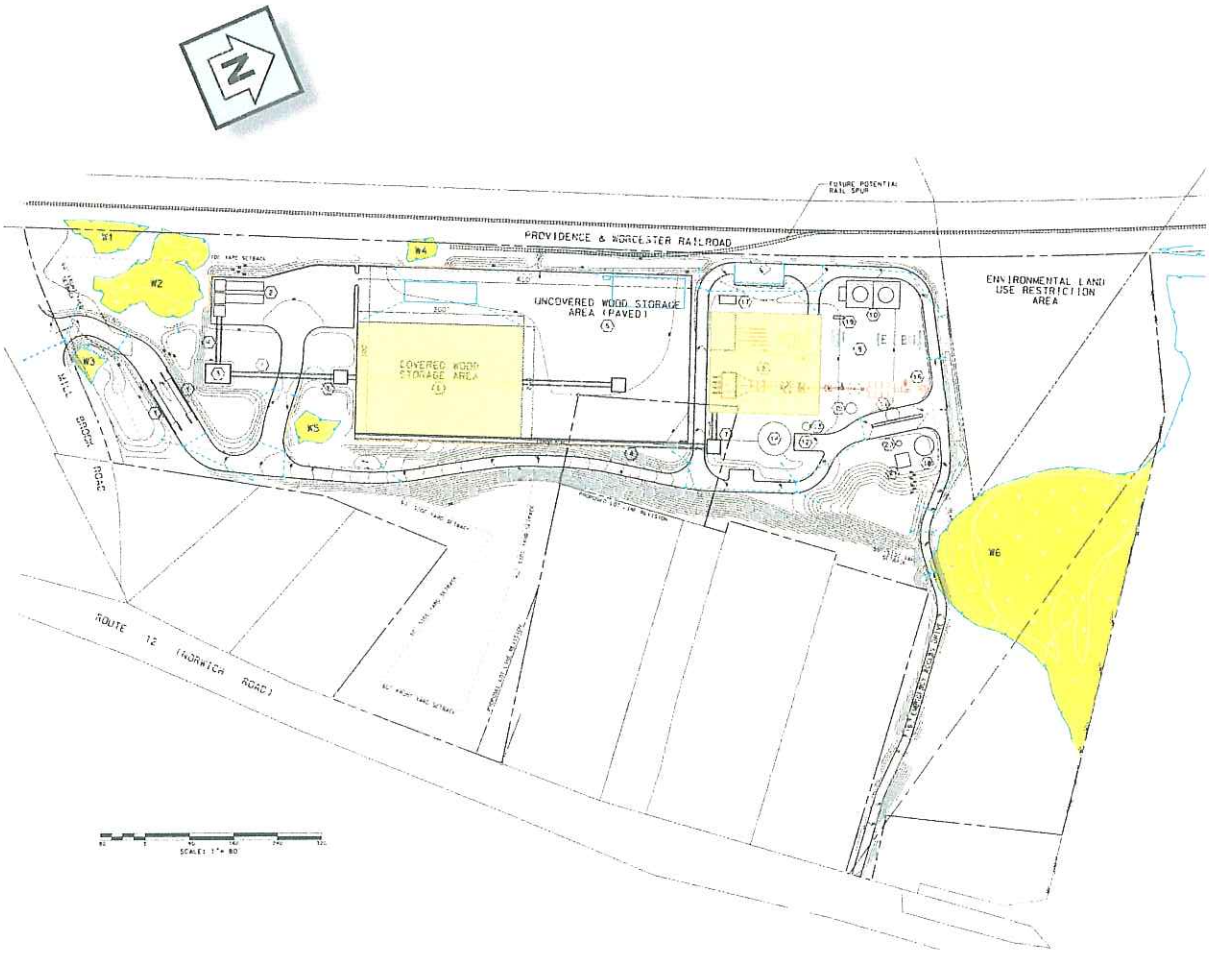
Figure 1: Site Location Map.



NAC
Northeastern Archaeology Consultants

Figure 2:Detail of USGS Plainfield Quad showing the location of the project area.

Approximate boundary of the project area shown in red.



NAC Northeastern Archaeology Consultants

Figure 3. Proposed Site Plan.

II. ENVIRONMENTAL SETTING

PROJECT SETTING

The proposed project is the construction of a wood-fired electrical generating facility. The facility will use an Energy Product of Idaho bubbling bed gasifer system that will burn approximately 1,000 tons of fuel a day. The facility will be able to store 45 days of fuel on site in covered and open storage areas (Figure 3). A 155-foot tall stack will provide the exhaust for emissions.

The project tract (Figure 1) is located northwest of the intersection of Connecticut Route 12 and Millbrook Road in Plainfield, Connecticut. The property where the site is located is roughly 27.23 acres (Figure 2). From an archaeological standpoint the site has been subjected to extensive disturbances by a variety of activities, most notably quarry operations to remove sand and gravel from the site.

In 1977 the property was used as a disposal site for bulk and drummed liquid industrial waste. The wastes were placed into two lagoons and one seepage bed. As a result of this contamination the property was listed on the DEP's Inventory of Hazardous Waste Disposal Sites and the Environmental Protection Agency (EPA) placed the site on the Superfund National Priority List in 1989. An Environmental Land Use Restriction (ELUR) was placed on the northwest portion of the site. The remediation of contaminates from the site has further impacted the soils of the project area.

In addition to the other historic uses, Kevin M. Cunningham, First Selectman for the Town of Plainfield, reported that the property was the site of an asphalt production facility during the construction of I-395 in the 1960's (Personal Communication, February 8, 2007).

PHYSIOGRAPHY AND HYDROLOGY

The project area lies in Fenneman's (1938) New England Upland section of the New England Province. The local topography is characterized by gently to moderately sloping ridgetop and slopes in glacial till uplands.

The majority of the project area drains into Mill Brook to the north of the site (Figure 2). Mill Brook drains into the Quinebaug River. The Quinebaug Rivers joins the Thames River in Norwich where it flows south until it empties into the Long Island Sound and eventually the Atlantic Ocean.

GEOLOGY AND SOILS

The project area is underlain by bedrock of sedimentary origin consisting of Paleozoic-era rock formations of the Middle Ordovician period. Bedrock underlying the project area is the Black

Hill Member of the Quinebaug Formation, which is described as gray, fine-grained, well-layered schist and granofels (Rodgers 1985).

The project area lies within the Charlton-Canton-Leicester association, which are well to poorly drained loamy soils on glacial till uplands. The main soil listing for the project area is Pr (Pits, Gravel) with small areas of Hinckley gravely sandy loam (HkC) and Merirmac sandy loam (MyB) along the boarders of the project property (Roberts 1981).

CLIMATE

The climate of Windham County is predominantly continental, exhibiting humid and temperate conditions, with warm summers and cold winters and prevailing winds from the southwest. Annual precipitation is usually about 47 inches. The growing season averages 127 days a year between the months of April and September (Wolf 1981).

FLORA

The project area lies in Braun's (1950) New England Section of the Northern Appalachian Highland Division of the Hemlock-White Pine-Northern Hardwood Region. Vegetation near the project area is primarily secondary growth oak-pine forest with associated undergrowth.

PALEOENVIRONMENT

Before the initial Paleoindian colonization of New England, the area experienced cyclic, Late Pleistocene glacial climates. As the glacial ice retreated north, cold, dry tundra was established. Around 12,000 years ago, as reconstructed from fossil pollen samples collected from across the northeast (Bernabo and Webb 1977:90), the tundra was replaced by spruce woodland. The coincidental appearance of spruce across the Northeast indicates "a climatic amelioration…that allowed spruce to grow in regions where it was previously limited by climate" (Davis 1983:179). The changes in the pollen record during this period were broad and rapid. This trend in the pollen record continues until 7,000 B.P., when the remnants of the continental glacier that had lingered south of Hudson Bay finally melted. After this occurrence, both the speed and the magnitude of the changes in the pollen assemblages decreased (Bernabo and Webb 1977:90).

Although some investigators have attempted to identify the spruce woodlands of the Late Pleistocene–Early Holocene as an unproductive environment that would have limited the potential for human colonization (Fitting 1968; Ritchie and Funk 1971), more recent palynological studies have suggested otherwise (Snow 1980:166). Davis (1983:176) notes that, "even at sites where the pollen influx indicates the presence of spruce trees, the continuing presence of herb pollen in high percentages suggests a partially open vegetation, not a closed forest like the modern boreal forest in Canada."

Davis (1983:176) also indicates that, "about 10,000 years ago, forests of variable composition developed in the North, and forests underwent a series of changes as new species migrated northward." Changes in the distribution (in range and in altitude) of white pine and hemlock led Davis to suggest the following climatic trends:

> The opening of the Holocene at about 10,000 years ago was marked by a change to essentially modern climate (though not of vegetational composition). Soon afterward, at least by 9000 B.P. the climate became warmer than today. Temperatures warmer than present appear to have persisted until the time of the Little Ice Age (A.D. 1450–1850) [Davis 1983:176].

A number of temperate forest species also were present at the opening of the Holocene, and the range of these trees soon expanded northward. The earliest Holocene forests included oak, elm, ash, birch, ironwood, and sugar maple (Davis et al. 1980:174). Davis (1983:174) has described the pollen assemblage for the early Holocene as resembling modern assemblages from the northern Great Lakes region. Significantly, ironwood was present at higher percentages than at any later time. Its presence "suggests a forest with a diffuse canopy and well-lighted forest floor" (Davis 1983:174). These early forests, however, lacked chestnut, hickory, and red maple, which became dominant late Holocene forests. With their importance as a food source to contemporaneous populations in other areas, particularly the Southeast, the slow migration of nut-bearing trees into the region is perhaps one of the most significant factors affecting both human and animal populations.

The modern vegetation patterns in the Northeast include a pine-dominant conifer/hardwoods region in the northern sections, and oak-dominant, deciduous forests in the southern portions. The modern ecotone extends from southern Maine west along the Massachusetts/Vermont border, then southwest across southern New York, and then west across northern Pennsylvania to Lake Erie. All of Connecticut is included in the deciduous zone, and the pollen records indicate that the ecotone between the two major zones was established as early as 7,000 B.P. Bernabo and Webb (1977:90) caution that, although the ecotone was stable from that period, the species composition of the forest has continued to change for several millennia.

III. CULTURAL BACKGROUND

PREHISTORIC PERSPECTIVE

Paleoindian Period (ca. 12,000–9,500 B.P.)

The Paleoindian period represents the earliest human occupation in the northeastern United States. This occupation began in the Late Pleistocene, soon after the continental ice sheet began to recede northward, once again exposing land. The placement of these occupations in the terminal Pleistocene epoch indicates an adaptation to cooler climatic conditions and a different physiographic regime than those found in the modern Holocene.

Over the next 4,000 years, the ice melted and retreated northward towards Canada, exposing the land surface of most of New York and New England in the process. The new landscape was dotted by postglacial lakes, which changed size and shape relatively quickly as the surface of the land adjusted to the loss of pressure from the ice sheet (Isachsen et al. 1991:178–179). During this time, approximately 12,000 to 13,000 years B.P., humans began moving into northeastern North America.

Aboriginal groups of the period were likely small, mobile bands dependent upon a hunting and gathering economy. Although they may have hunted some of the megafauna that became extinct at the end of the Pleistocene, such as mastodon *(Mammut americanum),* bison *(Bison bison antiquus)*, and ground sloth (*Megalonyx* sp.), it is likely that the subsistence base was varied and included a number of plant and animal foods. West of the Mississippi River, the association between fluted points and extinct Pleistocene mega fauna has led to the notion of Paleoindians being "big game hunters." However, the small number of associations in the eastern United States has led many to question the importance of the mega fauna in the subsistence of Paleoindians (McNutt 1996:189).

The oldest evidence of human occupation in the Northeast comes from the sites and assemblages associated with the Paleoindian Bull Brooke phase, which dates ca. 10,600–10,200 B.P. These sites include Bull Brook, Bull Brook II, and Wapanucket #8 in Massachusetts, and the Whipple site in southwestern New Hampshire (Curran 1999). One undisturbed Paleoindian site in Connecticut, 6LF21, was excavated in 1977 and produced the only radiocarbon date for this period in the state (10,190 B.P.). The remainder of the evidence for Paleoindian occupation in Connecticut comes from isolated finds of local variants of the fluted point tradition known as Clovis, which occur in scattered locations around the state. Many of these finds appear to be associated with former postglacial lake basins (Lavin 1984). In particular, surveys by the American Indian Archaeological Institute (AIAI) near Robbins Swamp, located along the Housatonic River in Canaan, Connecticut, have identified numerous Paleoindian sites around the margins of this rich ecological zone (Nicholas 1988). Although several of the sites have produced fluted points, the results of more detailed investigations are not yet available.

Archaic Period (ca. 9,500–3,000 B.P.)

The Archaic period is subdivided into the Early, Middle, Late, and Terminal Archaic. Current archaeological evidence suggests that the youngest fluted point sites date to no later than approximately 9,500 years ago, marking the beginning of the Early Archaic. The Early Archaic period is not as poorly represented in the archaeological record as the preceding Paleoindian period. Most of the Early Archaic sites have been identified by the presence of projectile points analogous to dated types found in stratified Southeastern sites. Moeller (1984:49) describes what he terms a "surprising abundance of apparently Early Archaic projectile points from surface collections in western Connecticut, including bifurcates, Kanawha, Kirk, and Palmer types." A majority of these sites are located on uplands.

Although projectile points similar to southeastern Middle Archaic types had been found in isolated contexts throughout the Northeast, clear identification of the chronological position of the northern analogs was not established until Dincauze (1971, 1976) reported on the excavations at the stratified Neville site on the Merrimack River in New Hampshire. These excavations documented the existence of the Neville stemmed point type dating between about 7,800 and 7,000 B.P., and the Stark stemmed projectile point dating between about 7,600 and 6,400 B.P. (Dincauze 1976). In addition, the Merrimack point type was identified as dating to the end of the Middle Archaic period. The Neville and Stark point types are similar in style and age to the Stanly and Morrow Mountain types that Coe (1964) defined earlier in the Southeast. The Neville and Stark points have proven to be relatively common across New England.

Research in the Connecticut River valley by the Public Archaeology Survey Team has uncovered a number of Middle Archaic components. The Dill Farm site in East Haddam has yielded dozens of Neville and Stark points, as well as narrow-stemmed points that McBride (1984a:56) describes as "Merrimack-like." The Dill Farm site produced a radiocarbon date of 8,050 B.P. in general stratigraphic association with the Neville and Stark points.

The accumulated data for the Middle Archaic period in the Northeast suggest that its inhabitants were forming distinct bands and settling into defined territories. These bands were establishing base camps and were occupying a greater variety of special purpose sites in a carefully planned seasonal round (Snow 1980:183). Evidence for the first use of coastal resources such as shellfish dates to this period; however, intensive exploitation of this resource base did not occur until the Late Archaic period. Several new tool types were developed during this period, including woodworking tools such as gouges and axes, and large ground stone semi-lunar knives. The adaptive strategy employed during this period is generally perceived to have been a diffuse adaptation, oriented towards generalized hunting and gathering and the seasonal exploitation of resources (Dincauze and Mulholland 1977:441; McBride 1984b:96, 238). According to Dincauze (1974:45) the preference for riverine, lacustrine, and bog settings during the Middle Archaic suggest an orientation toward the exploitation of anadromous fish runs in the spring and eastern flyway bird migrations during the spring and fall.

Throughout the Northeast, archaeologists recognize the Late Archaic period as one in which the numbers and types of sites increase dramatically—what Snow (1980:187) describes as the Late Archaic "florescence." Unlike with earlier time periods, interpreters of Late Archaic assemblages have to contend with a sometimes confusing and complex array of data. In New

York, Ritchie recognized two major Late Archaic components, the Lamoka and the Laurentian, which can overlap in time and space. The Lamoka tradition is associated with the small, narrow-stemmed projectile points that are found across New England, such as the Sylvan, Wading River, and Squibnocket types. Snow (1980:226) calls the Laurentian complex and its related assemblages in northern New England and the St. Lawrence drainage the "Lake Forest Archaic" and the Lamoka/Sylvan/Squibnocket complexes of central and southern New York and New England the "Mast Forest Archaic." Pfeiffer (1984) has compiled evidence that the Lake Forest Archaic in Connecticut is a widespread tradition firmly dated to the period between 5,000 and 4,200 B.P. Pfeiffer (1984:85) notes that the "Late Archaic period also witnessed an increase in the importance of gathering activities, the employment of storage, and an expanded duration of settlement."

McBride (1984b) has designated those elements of the Lake Forest tradition that occur in southern New England as belonging to the Golet phase, which he considers to be a local or regional variation. Brewerton and Vosburg projectile point are well represented in the artifact collections across Connecticut. McBride states that Lake Forest populations likely consisted of small, mobile bands exploiting a broad range of ecozones and resources (McBride 1984b:249, 252; McBride and Dewar 1981:48). He describes Brewerton sites in eastern Connecticut as being evenly distributed between riverine and non-riverine areas, with a dispersed settlement pattern and limited evidence of seasonal aggregations. If aggregations did occur, he believes it is likely that the groups either were small, or did not remain for long periods of time (McBride 1984b:252).

Pfeiffer (1984:76–77), however, contends that the Lake Forest inhabitants may have been sedentary and perhaps territorialistic. This assertion is based on evidence that he collected from a Lake Forest component at the Bliss site in Old Lyme, Connecticut. Structural outlines, compact living floors, and elaborate mortuary ceremonialism were associated with an artifact assemblage containing many of the traits included in Ritchie's (1980) attribute list for the Laurentian tradition. Pfeiffer (1984:77) suggests that the subsistence during the Lake Forest Archaic was based on a specialized or focal adaptive strategy, consisting primarily of year-round hunting, with fishing and plant gathering occasionally contributing to the diet.

In addition to the Lake Forest assemblages, Connecticut also has widespread and long-term evidence of Snow's Mast Forest tradition—what other researchers have often called the "Narrow Stemmed" or "Narrow Point" tradition. Mast Forest Archaic sites are numerous and occur in a wide variety of local settings (Snow 1980:230). The settlement consists of the "centrally based wandering" of highly territorial groups (Dincauze 1974:48; 1975:25; McBride 1984a:65, 1984b; Snow 1980). Population aggregations occurred along major drainages and interior wetlands, moving among habitation sites according to seasonal availability of resources. Mast Forest site distribution in the lower Connecticut River valley suggests an increase in the frequency and size of sites utilized as base camps, seasonal camps, and special purpose camps (McBride and Dewar 1981:48). The subsistence base probably consisted of a generalized, or diffuse adaptation, with the predominant food source being the white-tailed deer (Dincauze 1974, 1975; McBride 1984b).

The final Archaic period also has been called the Transitional period, in reference to its presumed transitional status between the Archaic and Woodland periods. Since research has continued to indicate that there is actually a great deal of cultural continuity between the Archaic

and Woodland periods, Snow (1980:235) has suggested that the label "Terminal Archaic" is more appropriate. In southern New England, the Susquehanna tradition (broad-stemmed projectile points and their associated assemblages) marks the early part of the Terminal Archaic. These points include a number of regional varieties, including the Genesee, Perkiomen, Snook Kill, and Susquehanna Broadspear types. Characteristics of the Susquehanna tradition include a marked preference for a riverine adaptation and a predilection for the fine-grained lithic resources of the Piedmont province, including rhyolite, felsite, argillite, and slate (Dincauze 1975:27; Turnbaugh 1975:54). The shift in settlements from inland wetlands to riverine zones coincides with an inferred economic shift from a diffuse adaptation in the interior to a focal adaptation in the floodplain locales.

The latter half of the Terminal Archaic period is marked by the appearance of narrow, tapered Orient Fishtail projectile points. Another hallmark of the Terminal Archaic period is steatite cooking vessels. The existence of these large steatite vessels suggests that the "people who made, traded, and used them had reached a point in the evolution of their settlement and subsistence systems where the use of heavy cooking vessels was advantageous" (Snow 1980:240). This implies that the people lived in more sedentary settlements and utilized foodstuffs that required long processing with heat.

Pfeiffer (1984) has labeled the corresponding tradition in Connecticut as the "River Plain Tradition," which is derived from its apparent settlement pattern focus along the floodplains of the major river systems. Radiocarbon dates for this tradition place it between 3,600 B.P. and 2,700 B.P. Pfeiffer (1990) describes it as the direct descendant of the Late Archaic Lake Forest adaptation of southern New England. McBride (1984b) does not recognize a chronological distinction between the various Terminal Archaic projectile points in the Lower Connecticut River valley, but instead defines the Salmon Cove phase as the only phase of the Terminal Archaic present within this region.

Woodland Period (ca. 3,000–450 B.P.)

Like the Archaic period, the Woodland period also is divided into four sub-periods: the Early, Middle, Late, and Final Woodland.

McBride (1984b) has defined the Early Woodland period (ca. 3,000–2,000 B.P.) in the lower Connecticut River valley as the Broeder Point phase. He considers this phase to be a continuation of the Narrow Point tradition; it is characterized by Meadowood, Lagoon, Rossville, and a variety of narrow points, as well as side-notched points. Other attributes of this phase include thick grit-tempered interior cord-marked, exterior smoothed or cord-marked ceramics (Vinette I) and a quartz cobble lithic industry. The limited evidence available suggests a settlement pattern consisting of "a high percentage of seasonal camps, in a widely dispersed pattern along the river, its terraces, and upland/interior zones" (Juli and McBride 1984:95). Some evidence of a population decline in the region exists for this time period (Hoffman 1985). Subsistence data from Martha's Vineyard for the Early Woodland period indicate hunting and an extensive dependence on shellfish, including clams, oysters, and scallops (Ritchie 1969:87, 224). The Early Woodland inhabitants of Connecticut do not appear to have participated in the Adena trade network.

Two Middle Woodland phases have been identified: the Roaring Brook phase (ca. 2,000–1,250 B.P.) and the Selden Creek phase (ca. 1,250–1,000 B.P.). The Roaring Brook phase is characterized by a continuation of the quartz cobble lithic industry and an increase in the utilization of nonlocal materials. Other attributes include rocker and dentate stamped ceramics. The Selden Creek phase is identified by ceramics of the Sebonac phase of the Windsor tradition.

Site distribution during the Middle Woodland period exhibits a significant rise in frequency and occupation area, with particular increase in coastal/riverine locations and a corresponding decrease in upland base camps (Lavin 1988a:110; McBride 1984b 135, 306–315; McBride and Dewar 1981:49). McBride's research in the Connecticut River valley suggests that, by the end of the Middle Woodland period, "major subsistence and settlement changes were taking place as people began to aggregate along major rivers for the entire year" (Juli and McBride 1984:96). Subsistence during the Middle Woodland period of southern New England consisted primarily of a hunting, fishing, and collecting economy, with shellfish comprising a significant part of the diet for the inhabitants of coastal sites (Ritchie 1969:227).

During the Late Woodland period (ca. 1,000–450 B.P.) the antecedents of the historically recognized Native groups become recognizable. Algonkian speakers occupied Southern New England, including Connecticut. Late Woodland-period characteristics include increased villages sizes, increased sedentism, increased trade networks, and the utilization of cultigens such as maize, squash, and beans. The Late Woodland period in Connecticut is recognized by two major ceramic traditions: the East River tradition in the western part of the state and the Windsor tradition in the east. Extending from 1,200 to 450 B.P., the Selden Creek phase in Connecticut covers the latter part of the Middle Woodland period and the entire Late Woodland period (McBride 1984b:134). Distinguishing trademarks of this phase include Levanna and Madison projectile points and an increased use of nonlocal lithic material. Other characteristics of the Selden Creek phase include a highly variable ceramic assemblage that includes plain, cord-marked, fabric-impressed, brushed, stamped, and incised surface decorations.

The overall increase in site frequency, size, and length of occupation for sites in the Late Woodland period continued, with the largest sites located in coastal and estuarine settings (Lavin 1988b:110; McBride 1984b:320, 324). Settlement patterns in the lower Connecticut River valley were characterized by semi-sedentary villages or base camps located on floodplains or terraces immediately adjacent to major drainages, with temporary and task-specific camps located in the uplands (McBride 1984b:139, 322–330; McBride and Dewar 1981:49).

The subsistence system of the Late Woodland period included hunting terrestrial animals and migratory fowl, fishing, shellfish collecting, and gathering wild plants (McBride 1984b:325). In addition, cultivated foods such as maize, beans, and squash became a part of the subsistence regime for the first time in prehistory. The earliest radiocarbon dates in the Northeast for the presence of cultigens are ca. A.D. 1100 (Mulholland 1988:146), and evidence for the exploitation of these cultigens is not abundant before the Final Woodland period, ca. A.D. 1500 (McBride and Dewar 1987:305). In addition, the earliest dates are generally associated with inland sites.

The Final Woodland period (ca. 450–317 B.P.) is identified in the Lower Connecticut River valley by the Niantic phase. The Niantic phase consists of a ceramic assemblage composed primarily of stamped, stamp and drag, linear dentate, and punctuate surface decorations

(McBride 1984b:146). Diagnostic projectile points include Levanna and Madison types, with a lithic assemblage comprised mainly of Hudson valley chert.

Settlements of the Final Woodland period were similar to the preceding period, and were characterized by large permanent and semi-permanent settlements in riverine areas, with small seasonal camps and a high frequency of task-specific camps located in the uplands; no temporary sites have been identified for this period (McBride 1984b:146, 337–341). With the exception of the intensification of horticulture, there were no significant changes in the subsistence economy of the Final Woodland period.

The prehistory of Connecticut came to a close as contacts with Europeans were established in the late sixteenth and early seventeenth centuries. Native American occupations, after establishment of the first permanent European settlement in 1633, have been designated by McBride (1984b) as the Hackney Pond phase. This phase was defined on the basis of a reemergence of the quartz cobble lithic industry with a corresponding decrease in the reliance on non-local material, and the presence of Guida stamped and incised and Shantok tradition ceramics (McBride 1984b:154–155). Other traits of the Hackney Pond phase include European trade goods represented in some, but not all, of the artifact assemblages, and a settlement system similar to the preceding phase, with the exception of the intensification of small seasonal camps located in a variety of environmental zones and predominating in upland areas near extensive wetlands (McBride 1984b:154–156, 351–359). Ethnohistoric research indicates that these small, highly variable occupations can be related to camps associated with basic subsistence units of nuclear and extended families (McBride and Bellantoni 1982).

HISTORICAL OVERVIEW

Plainfield was incorporated as the town of Quinebaug in 1699 and was later named Plainfield by the Governor in 1700. Early on there were several years of dispute over ownership of the territory by John Winthrop and James Fitch; each man had laid claim to the area. Both men recruited settlers to the area, those with ties to Winthrop settled on the east of the Quinebaug River, while the people aligned to Fitch settled to the west. The dispute was eventually settled when the followers of Fitch incorporated as the town of Canterbury in 1704. Although the dispute over the town had been settled there were still several years of arguing over the precise boundaries of the two towns with citizens of Plainfield organizing into committees to tear down the "Canterbury fence" that marked the boundary of the disputed land.

Agriculture was the main industry in Plainfield up to the early 1800's when several cotton mills were built, the Wauregan Mills on the Quinebaug River, and the Packerville Mill, just to the west of the current project property, on the Mill Brook. With the new mills and the completion of the Norwich/Worchester rail lines in 1839 and the Hartford/Providence in 1854, which intersected at Plainfield Junction, the town quickly increased in size. During the next 50 years the existing mills were enlarged and new mills, such as the Lawton Mills and village, were established.

Following the Great Depression and World War II, Plainfield suffered the same fate as many of the mill towns throughout Connecticut and the rest of New England as the owners of textile mills began to close their factories.

IV. METHODS

The cultural resource investigations involved three tasks: (1) preliminary research, including a literature, records, and map search; (2) field investigations; and (3) reporting.

LITERATURE AND RECORDS REVIEW

Before fieldwork began, a thorough literature search was conducted to identify previously recorded archaeological sites and/or historic properties in or near the present project area. Records examined include maps and reports on file at the Office of State Archaeology and the University of Connecticut in Storrs.

Maps, reports, and other records were used to identify sites in close proximity to the project area. Plainfield town files, historic maps, and records were examined for pertinent information.

FIELD METHODS

The purpose of the fieldwork was to identify areas within the study property that have a high probability for the presence of archaeological resources present and might be impacted by the proposed project. The field methods were established based on guidelines set forth in the *Environmental Review Primer For Connecticut's Archaeological Resources* (Poirier 1987).

The field investigation consisted of systematic pedestrian surface survey of all ground surfaces of the project area. The pedestrian survey was accomplished by visual examination of the entire project area. Areas with a slope greater than 15 percent were also examined for rock shelters or other potentially habitable resources.

Detailed notes on the survey methods and relevant environmental factors were recorded. Representative photographs of the project area were taken in digital format to document the general topography and vegetation.

V. RESULTS

BACKGROUND RESEARCH

There are no recorded archaeological sites within the proposed project location. There are two recorded archaeological sites within a one-mile radius of the project. Site 109-25, the Jesse Lillibridge House Site, is a small domestic assemblage associated with an extant1870 house. The artifacts were recovered during a survey for the Lowe's Regional Distribution Center. The second site is the 109-24, the Packerville Mill site, which are the ruins of the old cotton mill complex. The Packerville Bridge (Figure 1), which is associated with the mill complex, is listed on the National Register of Historic Places (NRHP).

There are three historic districts in Plainfield (Central Village Historic District, Lawton Mills Historic District, and the Plainfield Street Historic District) and three structures (Aldrich Free Public Library, First Congregational Church of Plainfield, and the Glen Falls Bridge) in addition to the previously mentioned Packerville Bridge that are listed on the NRHP.

Cartographic evidence examined does not indicate the presence of any structure on the property prior to 1856 (Figure 4,5). Subsequent maps examined during the course of the background investigation do not indicate the presence of anything other than a quarry having existed at the project site.

FIELD INVESTIGATION

February 12, 2007, Northeastern Archaeology Consultants conducted a cultural resource survey of the proposed Plainfield Renewable Energy facility.

A pedestrian survey of the site confirmed the high level of prior disturbance indicated by the background research. The entire area has been heavily quarried for gravel and sand. The northern extent of the site, a large sand pit (Figure 8,9) is the area with the ELUR restriction. This is one of the most heavily graveled areas and was also one of the most heavily polluted portions of the site. The visible disturbances are a result of both the mining operation and the remediation efforts by the DEP.

There are also visible disturbances to the rest of the project area as well. There are push piles of soil through out the site. There are visible trenches cut into the ground (Figure 10,11), and there are large pits throughout the property (Figure 12,13). There are also several areas consisting of old asphalt dumps (Figure 14) throughout the site, possibly the remnants of the asphalt operations at the site in the 1960's. There are also several areas that have been used as dump sites for modern non-hazardous waste (Figure 15).

The only features encountered during the survey are a concrete wall (Figure16), possibly a truck loading area for the gravel operations, and a concrete slab foundation (Figure 17) near the entrance to the site.

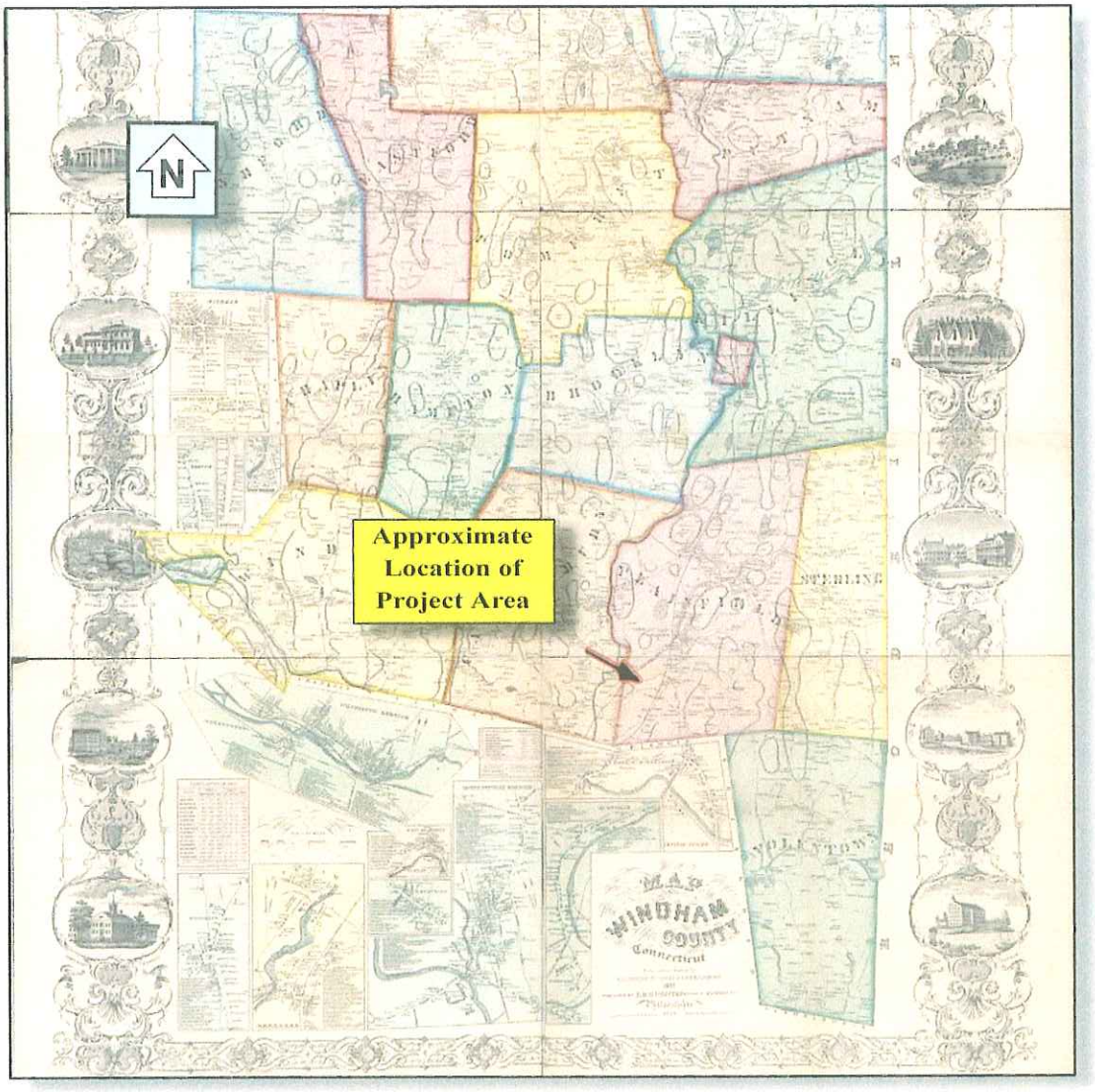
Other than modern material, no cultural artifacts or features were encountered.

As previously mentioned there is a 155-foot exhaust stack associated with the proposed project. During the course of the fieldwork we examined the possible impacts of the view shed of the proposed stack on the properties and districts listed on the NRHP.

The closest historic district to the project site is the Lawton Mills Historic District roughly southwest of the intersections of Route 14A and Route 12 (Figure 1). There is an approximately 120-foot/+ stack adjacent to the mill complex (Figure 18).

Views of the Lawton Mills stack from the southern extent of the Plainfield Street Historic District (Figure 1) were, for the most part, obscured by trees (Figure 19). Views of the stack for the proposed project, located more than a mile to the south of the Lawton Mills complex, would be virtually impossible from the Plainfield Street Historic District, even in winter.

Possible views of the proposed stack from the Lawton Mills Historic District, however unlikely given the proposed height of the project stack, and its distance from the Historic District, should have little impact on the cultural integrity of the district, as it is an industrial complex/village with an existing historic stack of a comparable height to the one proposed for the current project.



NAC
Northeastern Archaeology Consultants

Figure 4: 1856 map showing project area location.

Map of Windham County, Connecticut / from actual survey by E.P. Gerrish, W.C. Eaton & D.S. & H.C. Osborn. -- Scale 1:42,240. 1 in. equals 2/3 mile. -- Philadelphia : E.M. Woodford, 1856 (Wagner & McGuigan)

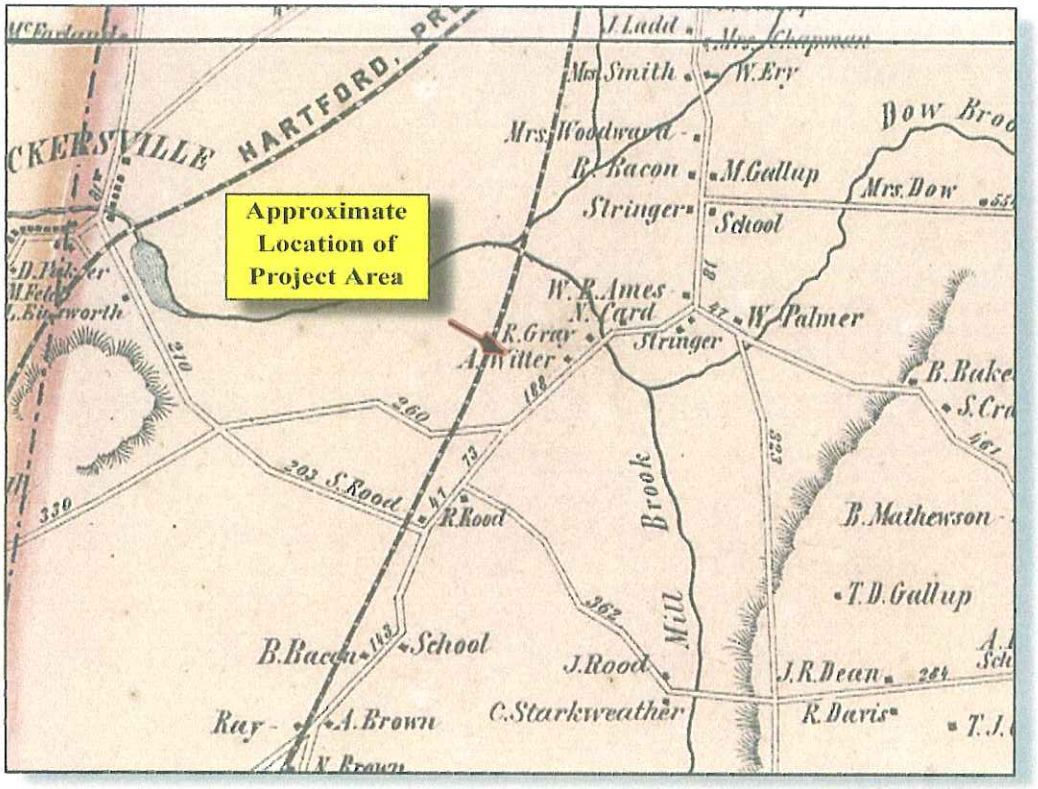


Figure 5: Detail of1856 map showing project area location.

Figure 6. Entrance to the proposed site from Millbrook Road. View to the north.

Figure 7. Millbrook Road, looking east from the entrance of the site.

Figure 8. Large sand pit at the northern extent of the site. View to the south.

Figure 9. Large sand pit at the northern extent of the site. View to the north.

Figure 10. One of several trenches located in the property.

Figure 11. Another trench located in the property.

Figure 12. One of several excavated pits found throughout the property.

Figure 13. Another of the excavated pits found throughout the property.

Figure 14. An asphalt dump site.

Figure 15. Dump site consisting of modern material.

Figure 16. Possible truck loading area associated with the gravel operations.

Figure 17. Concrete slab foundation.

Figure 18. Lawton Mills and its associated stack.

Figure 19. Lawton Mills Stack seen from the southern extent of the Plainfield Street Historic Dist.

VI. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Northeastern Archaeology Consultants conducted a cultural resource survey of the proposed Plainfield Renewable Energy facility February 12, 2007.

Background research and a pedestrian survey confirm a high level of disturbance to the proposed project site. Other than modern material no cultural material was recovered and no archaeological features were noted.

Views of the proposed project from districts listed on the NRHP will have little or no impact on the cultural integrity of the properties.

RECOMMENDATIONS

No cultural material was recovered during the survey and no archaeological features were encountered. It is anticipated that the proposed project will have no impact on cultural resources. The archaeological sensitivity of this project location is low.

No further cultural resource investigation of the project area is recommended.

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March 14, 2007

Historic Preservation
& Museum Division

59 South Prospect Street
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06106

(v) 860.566.3005
(f) 860.566.5078

Mr. Nathan Morphew
Northeastern Archaeology Consultants
28 Woodmont Drive
Mansfield Center, CT 06250

Subject: Renewable Energy Facility
Route 12 and Millbrook Road
Plainfield, CT

Dear Mr. Morphew:

The State Historic Preservation Office has reviewed the reconnaissance survey prepared by Northeastern Archaeology Consultants concerning the above-named project. In the opinion of the State Historic Preservation Office, the archival and archaeological methodologies employed by Northeastern Archaeology Consultants are consistent with our *Environmental Review Primer for Connecticut's Archaeological Resources.*

The State Historic Preservation Office concurs with Northeastern Archaeology Consultants that no further archaeological investigations appear warranted with respect to the proposed undertaking. This office believes that the proposed undertaking will have no effect upon Connecticut's archaeological heritage. This comment is limited to the above-noted Route 12 and Millbrook Road project boundaries; additional archaeological studies are warranted for the proposed water intake and outfall structure located on the Packer Road property.

This office recommends that Northeastern Archaeology Consultants consult with the Office of State Archaeology at the University of Connecticut (Storrs) concerning the professional transferal of all field notes, photographs, and artifactual materials generated by the archaeological investigations.

The State Historic Preservation Office appreciates the cooperation of all interested parties concerning the professional management of Connecticut's archaeological resources.

Connecticut Commission on Culture & Tourism

Historic Preservation
& Museum Division

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For further information please contact Dr. David A. Poirier, Staff Archaeologist.

Sincerely,

Karen Senich
Deputy State Historic Preservation Officer

cc: Dr. Nicholas Bellantoni/OSA
Mr. Bruce McDermott/WD

Q-CSC-26: Describe how Wetland 3 and Wetland 5 would be "integrated" with adjacent detention basins. Would each wetland become part of the detention basin or is there a definitive boundary? What is the hydrological function of the detention basins?

A-CSC-26: The hydrological function of the adjacent detention basins is to attenuate precipitation runoff, i.e. to infiltrate the precipitation as much as possible into the ground and disperse the remaining water prior to its flow into the wetland, to lessen its velocity, and the frequency of discharge. In both of these areas, there is overland flow prior to discharge as well. The intention of the design is that the detention areas become integral to the wetlands.

The integration of the basins with the existing wetlands will provide a means of compensation, restoration, and enhancement for these isolated wetlands. This will enhance the wetlands function of groundwater recharge and wildlife habitat. The wetlands and constructed stormwater basins will be planted with herbaceous wetlands plant species with scattered berry-bearing shrubs. The herbaceous wetlands species will be effective at out-competing invasive wetlands plants.

Q-CSC-27: Define the term "buffer zone" as it applies to on-site wetland protection. Describe how PRE would establish a buffer zone around each wetland.

A-CSC-27: The buffer zone is an undisturbed vegetated upland transitional zone around the perimeter of wetland. In large part, the buffer zone serves to slow overland sheet flow prior to entering the wetland, principally through surface roughness and canopy interceptions, and to limit sedimentation.

Most of the buffer zones around the on-site wetlands consist of a previously-disturbed vegetative buffer. Within the buffer, plant species include low-stature grasses with scattered shrubs, and saplings with larger patches of grasses. PRE will review the buffer zone vegetation around each wetland and will install the appropriate erosion and sedimentation controls prior to commencing on-site construction. Then, enhanced buffer zones will be constructed as outlined in section 5.2.3 of the *Environmental Report – Terrestrial Ecology for a Proposed 37.5 MW Biomass Facility (Facility Siting)*. Plantings in the buffer zone will consist only of native grasses, transitional upland/wetland shrub species (black chokeberry and common serviceberry) and fast-growing, early successional trees, such as grey birch, eastern red cedar, quaking aspen, and white oak.

Q-CSC-28: Please respond to the CTDEP comments of November 13, 2006 regarding proper wetland mitigation measures and whether PRE's proposed mitigation plan meets the mitigation hierarchy presented in the letter.

A-CSC-28: PRE currently is addressing the CTDEP comments and wetland mitigation measures as part of the ongoing CTDEP and U.S. Army Corps of Engineers permitting process.

In its November 13, 2006 correspondence, the CTDEP discusses the hierarchy of priority for wetlands impacts (or lack thereof) with regard to wetland W6 and wetland W3. The hierarchy is restore, enhance or create productive wetlands to compensate for irreversible or irretrievable loss of wetlands. Both of these wetlands will be impacted by the proposed site development.

As currently designed, the project will impact only a fraction (approximately 2,200 of over 87,000 square feet) of wetland W6. To compensate for the proposed impacts, PRE proposes wetland construction for wetland W6 as well as wetland enhancement. These actions are consistent with the CTDEP wetlands hierarchy. A buffer zone is proposed to protect the existing wetlands, to improve stormwater runoff quality, and to reduce sedimentation. The disturbed areas and the buffer zone will be re-planted as described in the response to Interrogatory #27. As discussed in the response to Interrogatory #23, impacts can be reduced by eliminating the emergency access road or with the use of retaining walls on one or both sides of the road, and by narrowing the emergency access road.

The impacts to wetland W3 are a direct result of a desire to protect the most productive isolated wetland on the site, W2. In order to protect wetland W2, allow for traffic to enter the site from Mill Brook Road, allow room for the scales, off-street truck queuing, and maneuvering, the impacts to approximately 260 square feet of wetland W3 were unavoidable. In keeping with the CTDEP wetlands hierarchy, wetlands restoration and enhancement are proposed. The proposed plan should improve the potential productivity of this "extremely degraded" wetland which is "providing little to no wildlife habitat". See, Kleinschmidt Terrestrial Ecology Report. The plan will provide groundwater recharge and wildlife habitat. The plan will expand the size of this wetland and integrate it with a proposed stormwater basin as previously discussed.

Five year post-mitigation monitoring of the wetlands will be performed in accordance with the 2006 Army Corps of Engineer New England District Mitigation Guidance.

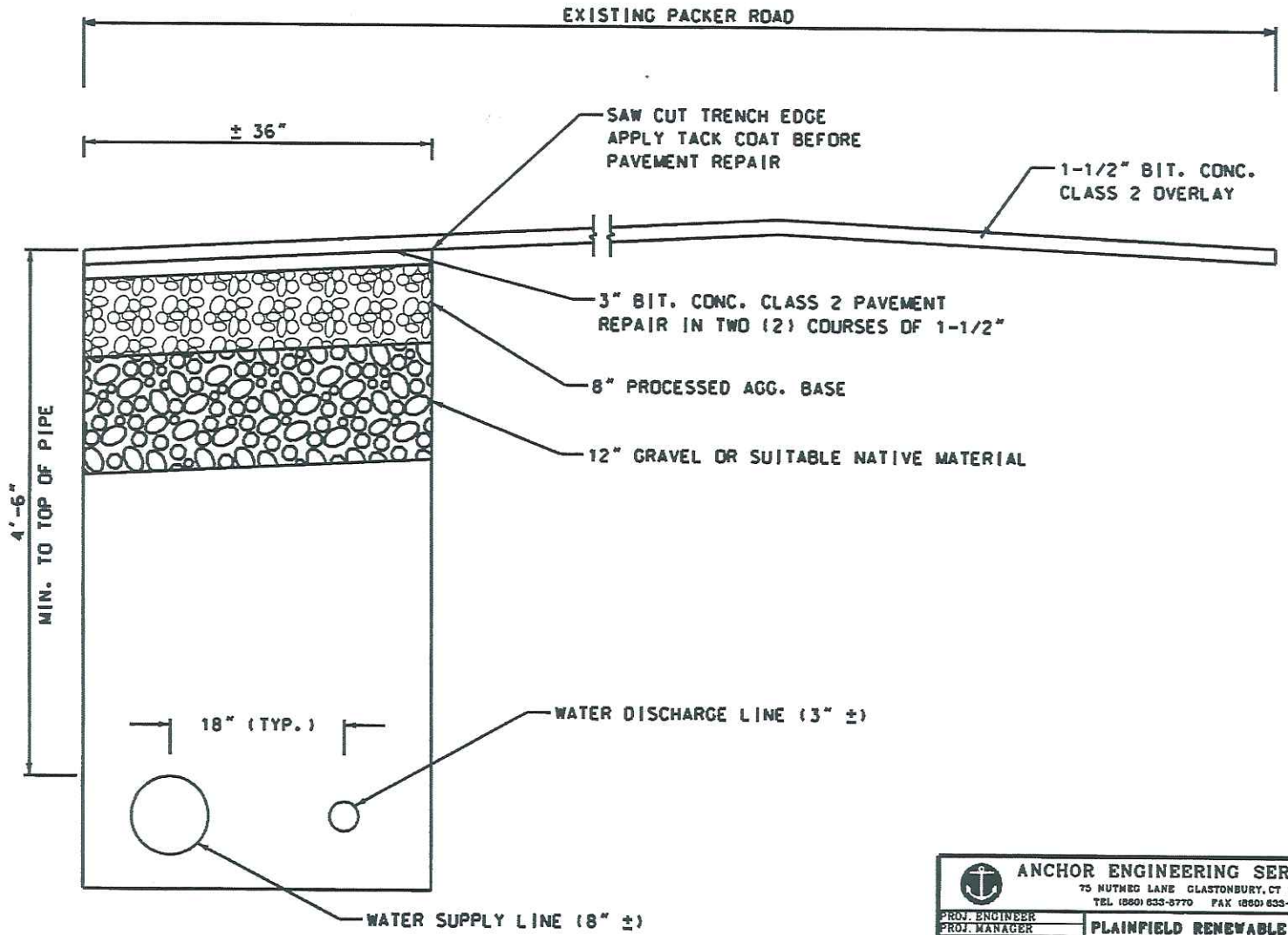
Q-CSC-29: As an element of the water diversion permit, would a wetland mitigation/compensation plan be required?

A-CSC-29: Yes. The Project met with the U.S. Army Corps of Engineers and the CTDEP Inland Water Resources Division on March 8, 2007 to discuss the project and the permit application requirements. PRE is preparing the permit applications and expects to submit them within the next two weeks.

Q-CSC-30: What is the width of the corridor and workspace needed to install the water pipeline along the road route? Would cut and fill be required? Has there been any analysis of potential impacts to wetlands along the road route?

A-CSC-30: The water pipeline work along Mill Brook Road and Packer Road is proposed to be longitudinal within the existing pavement and road shoulder. The typical section for the work in Packer Road is attached. As shown, the trench for the water supply and discharge line will be approximately five feet wide.

Petition 784
Exhibit CSC -30-1



ANCHOR ENGINEERING SERVICES, INC.
75 NUTMEG LANE GLASTONBURY, CT 06033
TEL (860) 633-5770 FAX (860) 633-5971

PROJ. ENGINEER
PROJ. MANAGER
OFFICE REVIEW

REVISIONS

SCALE: 3/4" = 1'-0"

PLAINFIELD RENEWABLE ENERGY, LLC

TYPICAL SECTION

CANTERBURY CT

PROJECT	DATE	SHEET NO.
952-01	01/24/07	1 OF 1

Interrogatory CSC-31

Plainfield Renewable Energy LLC
Petition 784

Q-CSC-31: Is it possible to reconfigure the main access road so that the road runs in a north-south direction along the east property line rather than between Wetland 2 and Wetland 3?

A-CSC-31: Operationally, it would be less desirable to reconfigure the access road alignment along the east property line, as the current alignment allows for queue length of inbound and outbound trucks with the scales adjacent to each other. The proposed access road is relatively flat between the scales and its intersection with Mill Brook Road. The scales are required to be set level, and the drives that approach them need to be nearly level. As Mill Brook Road rises to the east, the access road would then need to be steeper in grade. In order to adjust the access road, either the queue lengths would be reduced, or the scales reconfigured, or both.

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