	AREVA NP Inc.
38-7011590-000	

Addendum Report Third Supplemental Phase I Cultural Resources Investigation

Bell Bend Nuclear Power Plant
Luzerne County, Pennsylvania
ER 81-0658-079

Prepared for:

AREVA NP Inc.
and
UniStar Nuclear Energy, LLC

Prepared by:

Barbara A. Munford, M.A.
GAI Consultants Inc.
385 East Waterfront Drive
Homestead, Pennsylvania

GAI Project No. C110841.00

September 15, 2011



*Note 1: Items in brackets have
been redacted per agency
request.*

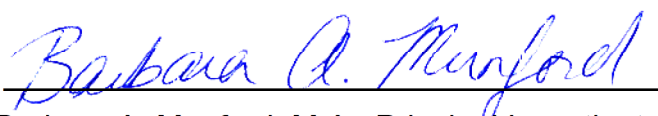


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Abstract

In July and August 2011, GAI Consultants, Inc. (GAI) conducted Third Supplemental Phase I cultural resources investigations of new project localities within PPL Bell Bend (PPL)'s proposed Bell Bend Nuclear Power Plant (BBNPP), Luzerne County, Pennsylvania. This study was performed for AREVA NP Inc. (AREVA) on behalf of UniStar Nuclear Energy (UniStar). The supplemental project area totaled approximately 25.7 acres (10.4 hectares) and consisted of five parcels: Area 1, Area 7 North, Area 12, Area 13 East (Excess Cut Disposal Area), and Area 14. The Phase I Area of Potential Effect (APE) included approximately 24.3 acres (9.8 hectares) of uplands and 1.4 acres (0.6 hectares) of low terrace/floodplain settings adjacent to previously-surveyed portions of the BBNPP project area. PPL proposes construction activities resulting in both temporary and permanent impacts (e.g., timbering, grading, fill, construction lay down, and roadway construction) within portions of the supplemental project area.

GAI's Third Supplemental Phase I study included a background research review, an archaeological reconnaissance, and Phase Ib field investigations. Fieldwork consisted of the excavation of 71 shovel test pits in localities of moderate to high archaeological potential.

Phase Ib shovel testing produced 22 modern/historic artifacts and resulted in the identification of one historic period archaeological site (Site 36LU307) within the project area.

The supplemental Phase I study area encompassed a portion of one previously-recorded National Register-eligible architectural resource [the North Branch Pennsylvania Canal (141673/GAI-10)]. It also included three previously recorded architectural resources determined Not Eligible for listing in the National Register of Historic Places (NRHP): a portion of the Bloomsburg Division of the Delaware, Lackawanna & Western Railway (155053/GAI-11); portions of the Susquehanna and Tioga Turnpike (155056/GAI-12); and a residence (GAI-23). These resources were documented by a previous GAI architectural survey of the BBNPP project area and no additional investigations were conducted during the current study.

Based on the results of this study, GAI recommends that Site 36LU307, a low density twentieth century artifact scatter, is Not Eligible for listing in NRHP. No further archaeological investigations are recommended for this site. As noted in previous submittals, GAI recommends that an assessment of project impacts to the NRHP-eligible North Branch Pennsylvania Canal be conducted and results presented in a separate Criteria of Effects Evaluation Report for architectural and historic resources identified within the BBNPP project area.

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I. Introduction and Project Overview

Project Summary

Between July and August 2011, GAI Consultants, Inc. (GAI) conducted Third Supplemental Phase I Cultural Resources Investigations of new project localities within the proposed Bell Bend Nuclear Power Plant (BBNPP), in Luzerne County, Pennsylvania, for AREVA NP Inc. (AREVA) on behalf of UniStar Nuclear Energy, LLC (UniStar). The overall BBNPP project area is located adjacent to the existing PPL Corporation's Susquehanna Steam Electric Station (SSES), west of the North Branch Susquehanna River and northeast of the town of Berwick, Pennsylvania (Figure 1). PPL proposes the potential development of a nuclear power generation unit in this locality. As defined by AREVA, the Third Supplemental Phase I study area consists of approximately 25.7 acres (10.4 hectares) of new project localities bordering previously-surveyed portions of the BBNPP project area. These new project areas reflect 1) the addition of an on-site excess cut disposal area, associated with relocation of the proposed BBNPP power block, and 2) minor project boundary changes identified during a 2011 property survey. The purpose of GAI's study was to determine the presence of unrecorded archaeological sites within new portions of the project area and to assess the potential eligibility of identified sites for listing in the National Register of Historic Places (NRHP).

The Third Supplemental project area consists of five parcels including Area 1, Area 7 North, Area 12, Area 13 East (Excess Cut Disposal Area), and Area 14 (Photographs 1, 2, and 3). Area 12, Area 13 East, and Area 14 occupy upland settings near the south edge of the BBNPP project area. Area 13 East, situated between US Route 11 and the Susquehanna River, is a largely wooded parcel crossed by an existing transmission corridor and bordered by previously-surveyed Lots 93 D and 93 F. Area 14 includes a residential lot bordering the north edge of US Route 11, as well as a section of this roadway; it lies east of the transmission corridor, adjacent to previously-surveyed Lot 93D. Area 12 consists of a section of US Route 11, west of the transmission corridor. Area 1 and Area 7 North are both located on the low terrace/floodplain of the Susquehanna River in the northeast portion of the BBNPP project area. Area 1 consists of a portion of a paved access road adjacent to the south edge of previously-surveyed Area 7, while Area 7 North borders the northwest edge of this test area. Proposed construction activities will result in both temporary and permanent impacts (e.g., timbering, grading, fill, construction lay down, and roadway construction) within portions of the supplemental project area.



Photograph 1. Transmission Corridor in Area 13 East (Excess Cut Disposal Area), Facing Southwest

Photograph 2. Area 1 showing Paved Access Road and Adjacent Parking Lot at North Edge of PPL Riverlands Park, Facing West



Photograph 3. Area 14 showing Garage and Residential Lawns on North Side of US Route 11, Facing North



This Third Supplemental Phase I survey represents GAI's eighth cultural resources study of the proposed BBNPP project. GAI conducted Phase Ia cultural resources investigations (archaeological/geomorphological reconnaissance and architectural survey) of 1,271 acres (514 hectares) of potential project alternatives in two episodes—June 2007 and January 2008 (GAI 2007, Munford and Tuk 2008). Phase Ib survey of the initial 639-acre (259-hectare) project area (West Alternative, Areas 6, 7, and 8, and Confers Lane Parcel) was performed between May and August 2008 (Munford et al. 2008). Supplemental Phase Ib survey of approximately 263 acres (106 hectares) of new project localities (Lots 4, 64, 93F, 95, 96, 97/97C, and 100) bordering the initial project area was conducted between August and November 2008 (Munford 2008). Initial and Supplemental Phase Ib studies identified eleven archaeological sites, seven of which were determined to be potentially eligible for listing in the NRHP.

GAI conducted Phase II National Register Evaluations of these seven sites between July and November 2009, and based on the results of this study all seven sites were recommended as

Not Eligible to the NRHP. Architectural survey of the project area documented 52 architectural and historical resources within the project viewshed and recommended that seven resources were eligible or potentially-eligible for listing on the NRHP. The results of Phase I and II investigations were presented in the individual documents noted above and in a combined Draft Phase I/Phase II Technical Report (Munford et al. 2010). In an August 23, 2011 review letter (see Appendix B) PHMC-BHP concurred with eligibility recommendations for six of the seven Phase II sites and concluded that one site (36LU288) is NRHP eligible, requiring either site avoidance or Phase III Data Recovery investigations. They further concluded that three architectural resources are not NRHP-eligible and recommended a site visit to evaluate the NRHP eligibility of one historic district (155070).

GAI conducted a Second Supplemental Phase Ib survey of an additional 176 acres (71 hectares) of new project areas between April and May 2010 (Munford 2010). This study identified two archaeological sites, one of which (Site 36LU301) was recommended as potentially NRHP eligible. Based on PHMC-BHP's review and concurrence, GAI performed a Phase II National Register Evaluation of Site 36LU301 between June and July 2011. A technical report on this study is in progress.

Third Supplemental Phase I investigations were conducted in accordance with GAI's Scope of Work dated May 31, 2011. The initial scope of work was based on project mapping provided by AREVA (AREVA February 18, 2011, mark-up of Figure 1, Second Supplemental Phase Ib Project Location, GAI Consultants, Inc., June 30, 2010; Area to Characterize, PPL Bell Bend, LLC, Bell Bend Nuclear Power Plant, Salem Township, PA, Pennoni Associates, Inc. May 11, 2011). Slight changes in the Supplemental Phase I study area occurred due to review of additional project mapping and minor revisions in the project limit of disturbance (Limit of Disturbance, PPL Bell Bend, LLC, Bell Bend Nuclear Power Plant, Salem Township, PA, Pennoni Associates, Inc., August 25, 2011). This addendum report presents the methods and results of Supplemental Phase I survey and provides recommendations on the need for further work. A BHP Report Summary Form for the project is presented in Appendix A. Project Correspondence is located in Appendix B, while a PASS form and an artifact catalog are provided in Appendices C and D.

Area of Potential Effect

The Area of Potential Effect (APE) for the current Phase I study consists of approximately 25.7 acres (10.4 hectares) of new project localities within the BBNPP project area (see Figure 1). The project APE is defined as the footprints of the five test areas: Area 1 (0.75 acres/0.30 hectares), Area 7 North (0.63 acres/0.25 hectares), Area 12 (0.76 acres/0.31 hectares), Area 13 East (Excess Cut Disposal Area) (19.26 acres/7.79 hectares), and Area 14 (4.33 acres/1.75 hectares).

Summary of Results

Supplemental Phase I fieldwork was performed between July 11 and 15, 2011 and on August 25, 2011. This work included an archaeological reconnaissance of the project area and the excavation of 71 shovel test pits (STPs) in portions of the project area concluded to have a moderate to high archaeological potential to contain archaeological resources (Figure 2). Table 1 presents a summary of Third Supplemental Phase I survey results by testing area.

The Third Supplemental Phase I survey identified one archaeological site, Site 36LU307, yielding 22 modern/historic artifacts. This site represents a small, low density scatter of twentieth century artifacts and was recommended as Not Eligible to the NRHP.

GAI's previous architectural survey documented four architectural resources that are situated within the project footprint. One of these resources, the North Branch Pennsylvania Canal (141673/GAI-10), has been concluded by PHMC-BHP to be eligible for listing in the NRHP (March 17, 2010 review letter) (see Appendix B). The other three resources—the Bloomsburg Division of the Delaware, Lackawanna & Western Railway (155053/GAI-11), the Susquehanna and Tioga Turnpike (155056/GAI-12), and a residence (GAI-23)— have been concluded Not Eligible by PHMC-BHP (March 17, 2010 review letter) (see Appendix B). No additional investigations were conducted of these resources during the current study.

Based on the results of the Phase I survey GAI recommends no further archaeological investigations of the Third Supplemental project area.

As indicated in the earlier BBNPP Phase I/II Technical Report (Munford et al. 2010), GAI recommends that project impacts to the North Branch Pennsylvania Canal be assessed and included in a subsequent Criteria of Effects Evaluation Report for the BBNPP project.

Table 1. Summary of Third Supplemental Phase I Survey Results

Test Area	Acres	Moderate-High Potential Acres	# STPs	Identified Archaeological Sites	Previously-Surveyed Architectural Resources in Project Footprint
Area 1	0.75	0	0	0	2 141673 (GAI-10)* 155053 (GAI-11)*
Area 7 North	0.63	0.43	0	0	2 141673 (GAI-10)* 155053 (GAI-11)*
Area 12	0.76	0	0	0	1 155056 (GAI-12)**
Area 13 East (Excess Cut Disposal Area)	19.26	1.74*	22	0	0
Area 14	4.33	2.48	49	1 (36LU307)	2 155056 (GAI-12)** GAI-23
TOTAL	25.73	4.85	71	1	4

141673 (GAI-10)-determined NRHP Eligible; * 141673 (GAI-10) and 155053 (GAI-11) extend through Area 1 and Area 7North; **155056 (GAI-12) extends through Areas 12 and 14; *encompassed by GAI 2008 Phase Ib survey

Regulatory Guidelines

GAI's Cultural Resources Survey was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, guidelines developed by the Advisory Council on Historic Preservation, the amended *Procedures for the Protection of Historic and Cultural Properties* as set forth in 36 CFR 800, the Secretary of Interior's *Standards and Guidelines for Archaeology and Historic Preservation*, and *Cultural Resource*

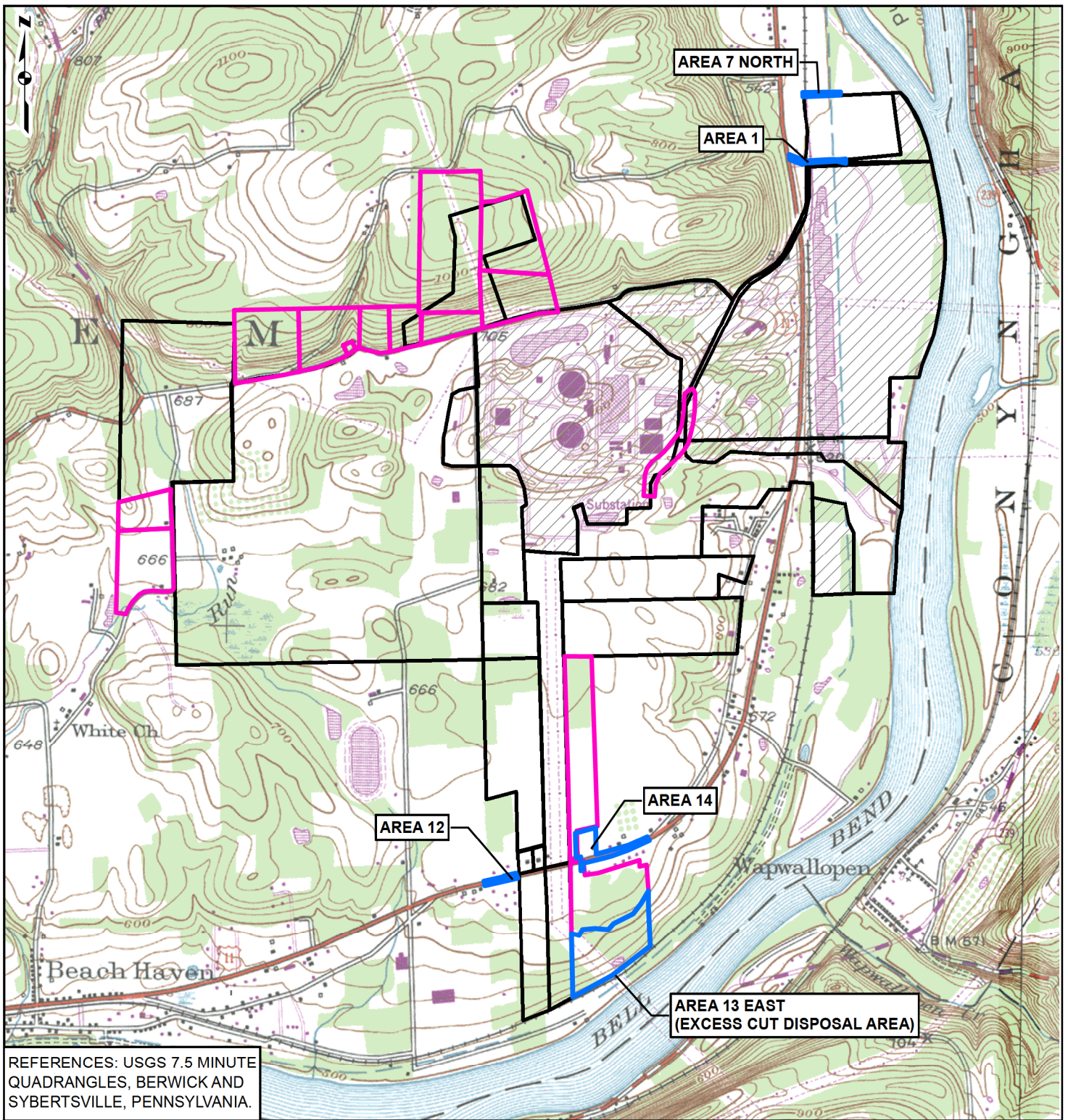
Management in Pennsylvania: Guidelines for Archaeological Investigations (PHMC-BHP 1991).

Project Staff and Acknowledgements

Benjamin Resnick, M.A., RPA (Group Manager, Cultural Resources) served as project manager for GAI's study. Barbara A. Munford, M.A. (Lead Archaeologist) was project Principal Investigator and author of this addendum report. William Caramana (Archaeologist) supervised the archaeological fieldwork which was conducted along with Colleen Dugan (Archaeologist) and Matt Wilson. Amanda Wasielewski prepared figures for this document.

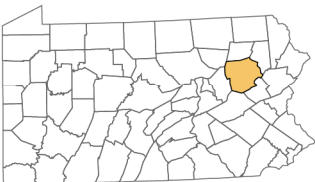
John Snooks was AREVA's technical manager for the project.

Larry Peterson (AREVA) and Mike Wysocki (UniStar) served as on-site field coordinators for supplemental Phase Ib fieldwork and facilitated the field crew's daily access within the project area. Michael Detamore (PPL) managed the field project for PPL Bell Bend.







REFERENCES: USGS 7.5 MINUTE QUADRANGLES, BERWICK AND SYBERTSVILLE, PENNSYLVANIA.

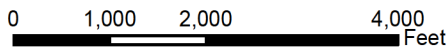
PROJECT LOCATION




LUZERNE COUNTY, PENNSYLVANIA

LEGEND

-  THIRD SUPPLEMENTAL PHASE Ib PROJECT AREA
-  SECOND SUPPLEMENTAL PHASE Ib PROJECT AREA
-  PREVIOUS PHASE Ib PROJECT AREA
-  EXCLUDED AREA



**FIGURE 1
THIRD SUPPLEMENTAL
PHASE Ib PROJECT LOCATION**

 BELL BEND NUCLEAR POWER PLANT
UNISTAR NUCLEAR ENERGY, LLC.

DRAWN BY: AJW
CHECKED: BAM

DATE: 09/02/2011
APPROVED: BAM

Figure 2. Third Supplemental Phase I Project Area showing Archaeological Potential and Testing Locations

*REDACTED Figure 2
Third Supplemental Phase I
Project Area showing
Archaeological Potential and
Testing Locations*

II. Background, Setting, and Archaeological Potential

Summary of Previous Studies

GAI conducted a Phase Ia archaeological and geomorphological reconnaissance of approximately 760 acres (307.5 hectares) of potential project alternatives for green space/power plant development in June 2007 (GAI 2007). In January 2008, following selection of the preferred alternative, GAI performed Phase Ia investigations (archaeological and geomorphological reconnaissance and architectural survey) of an additional 511 acres (206.8 hectares) (Munford and Tuk 2008). In total, 1,271 acres (514.3 hectares) were investigated by Phase Ia survey.

Phase Ia background research identified 24 previously-recorded archaeological sites and five previously-recorded architectural resources within the project vicinity. Six of these sites (36LU15, 36LU16, 36LU48, 36LU49, 36LU50 and 36LU51) and one architectural resource (the North Branch Pennsylvania Canal/141573) were mapped within the Phase Ia project footprint. GAI's architectural survey recorded 52 architectural and historical resources within the proposed project viewshed. Ten of these surveyed resources were initially recommended eligible for NRHP listing. Phase Ia geomorphological and archaeological field reconnaissance, along with background research, defined localities of moderate to high archaeological potential (e.g., undisturbed, relatively level, well-drained areas), low archaeological potential (e.g., wetlands or slopes in excess of 15 percent) and disturbed/no potential within the project area. Systematic Phase Ib survey was recommended for areas of moderate to high potential. In a June 5, 2008, review of these studies (GAI 2007; Munford and Tuk 2008), the PHMC-BHP concurred with GAI's recommendations for additional Phase Ib archaeological fieldwork and requested further survey information for 22 of the 52 recorded architectural and historical resources.

GAI conducted Phase Ib archaeological survey of a 639-acre (259-hectare) project (West Alternative, Area 6, Area 7, Area 8, the Confers Lane Parcel, and the proposed Switchyard 2 Transmission Line Corridor) between May and July 2008 (Munford et al. 2008). This work resulted in the identification of 11 archaeological sites (Sites 36LU278, 36LU279, 36LU280, 36LU281, 36LU282, 36LU283, 36LU284, 36LU285, 36LU286, 36LU287 and 36LU288) and 25 Isolated Finds. Seven of the sites (Sites 36LU279, 36LU280, 36LU281, 36LU283, 36LU285, 36LU286, and 36LU288) were recommended as potentially-eligible for listing in the NRHP and avoidance or Phase II testing was recommended for these localities. Supplemental architectural and historical survey collected additional information and provided completed PHRS forms for 22 of the 52 resources recorded during the initial survey.

Supplemental Phase Ib survey of 263 acres (106 hectares) acres of new project localities bordering the initial Phase Ib project area was conducted by GAI between August and November 2008 (Munford 2008). No archaeological sites were identified during this work and no further work was recommended.

Based on the Phase Ib results and SHPO concurrence (PHMC-BHP review letter dated March 23, 2009), and at the request of UniStar, GAI performed Phase II National Register Evaluations of the seven potentially-eligible archaeological sites (Sites 36LU279, 36LU280, 36LU281, 36LU283, 36LU285, 36LU286, and 36LU288). Fieldwork was conducted between July and November 2009. The results of Phase Ib and Phase II investigations were provided in a combined Phase I/II Technical Report (Munford et al. 2010) which was submitted to PHMC-BHP for review in December 2010. Based on the results of Phase II testing, all seven sites were recommended as Not Eligible to the NRHP and no further investigations were

recommended. Three architectural resources were concluded by the PHMC-BHP to be NRHP eligible (North Branch Pennsylvania Canal/141673, Union Reformed and Lutheran Church/155049, and Woodcrest/155052) and four additional architectural resources were recommended by GAI as potentially NRHP eligible (Stone Arch Bridge/155054, North Market Street Bridge/155055, Red Brick Studios/155064, and Wapwallopen Historic District/155070). In an August 23, 2011 review letter (see Appendix B) the PHMC-BHP concurred that six of the archaeological sites are Not Eligible; they concluded that one site (36LU288) is NRHP eligible and recommended avoidance or Phase III data recovery investigations for this site. Additionally, PHMC-BHP concluded that 155054, 155055 and 155064 are not NRHP eligible and requested a site visit to evaluate eligibility of the Wapwallopen Historic District (155070).

In 2010, GAI conducted Second Supplemental Phase Ib survey of 176 acres (71 hectares) of new project areas (13 upland lots) associated with the BBNPP Power Block Relocation (Munford 2010). This study identified two archaeological sites (36LU301 and 36LU302). Prehistoric Site 36LU301 was recommended as potentially eligible for listing in the NRHP, while historic period Site 36LU302 was recommended as Not Eligible. PHMC-BHP concurred with these recommendations in a May 20, 2011 review letter, requesting Phase II investigations of Site 36LU301 in the event that the site cannot be avoided by proposed project impacts (see Appendix B).

At the request of PPL, GAI performed a Phase II National Register Evaluation of Site 36LU301 between June and July 2011. Data analysis and preparation of a Phase II report are in progress.

Project Setting

The BBNPP project area is located in Luzerne County, in the Susquehanna Lowland Section of the Ridge and Valley physiographic province (Sevon 2000). GAI's Phase I/II Technical Report (Munford et al. 2010) provides details regarding the overall project setting; the current document presents only a brief review.

The overall BBNPP project area is located on the inside edge of a large southwest curve in the North Branch Susquehanna River, referred to as Bell Bend (see Figure 1). US Route 11, which follows the curve of the river, crosses through the eastern and southern portions of the project area. The previously-surveyed 1,078-acre (436-hectare) Phase Ib project area comprised uplands surrounding the existing SSES facility, as well as more limited low terrace/floodplain settings along the west bank of the Susquehanna River. The Third Supplemental Phase I project area includes new project localities in both upland and low terrace/floodplain settings bordering previously-surveyed portions of the project.

Upland portions of the project area consist of Late Illinoian to Wisconsin-aged, high glacial outwash terraces of the Susquehanna River (Bush 1981). These upland settings have no potential for deeply buried cultural resources. Any cultural resources in these areas are expected to be associated with the modern ground surface. Portions of the project area east of US Route 11 occur on low terraces and floodplain of the Susquehanna River, formed in Late Holocene to recent-aged alluvial sediments (Bush 1981). These areas, particularly the well-drained low terraces and natural levee landforms, have a potential for deeply buried cultural resources (Munford et al. 2010; Hayes 1981).

Current land use within the Third Supplemental Phase I project area includes woodlands, residential and commercial development, and limited cultivation. Areas of disturbances are associated with construction of a transmission line corridor, road construction, residential use, commercial development, and ATV trails.

Background Research Review

Based on a review of previously-conducted background research and the results of GAI's 2008 architectural survey of the initial BBNPP project area (Munford and Tuk 2008, Munford et al. 2010) the Third Supplemental Phase I APE contains four previously-recorded architectural resources. These resources include one NRHP-eligible property [the North Branch Pennsylvania Canal (141673/GAI-10)] as well as three resources determined Not Eligible for listing in the NRHP—the Bloomsburg Division of the Delaware, Lackawanna & Western Railroad (155053/GAI-11); the Susquehanna and Tioga Turnpike (155056/GAI-12), and a residence (GAI-23). A description of these resources was provided in GAI's Phase Ia Technical Report (Munford and Tuk 2008) and Phase I/II Technical Report (Munford et al. 2010). PHMC-BHP determinations of eligibility for these resources were provided in June 5, 2008 and March 17, 2010 review letters (see Appendix B). Based on PHMC-BHP's review, no further investigations of the railroad (155053/GAI-11), the turnpike (155056/GAI-12) and the residence (GAI-23) are required. An assessment of proposed project impacts to the North Branch Pennsylvania Canal (141673/GAI-10) is to be included in a separate Criteria of Effects Report to be prepared for NRHP-eligible properties within the overall BBNPP project.

Table 2. Previously-Recorded Architectural Resources within Project APE

ID No.	Name	Address	Style and Type	Date	NRHP Eligibility	Location within APE
NRHP- Eligible						
141673/ GAI-10	North Branch Pennsylvania Canal	Along Susquehanna River, US Rt.11 Vicinity, Salem Twp	Vernacular Canal	1828	Determined Eligible by PHMC-BHP, Criterion A	Area 1 Area 7 North
Not Eligible						
155053/ GAI-11	The Bloomsburg Division of the Delaware, Lackawanna & Western Railway	Along Susquehanna River, US Rt. 11 Vicinity, Salem Twp	Vernacular Railroad	1858	Determined Not Eligible by PHMC-BHP	Area 1 Area 7 North
155056/ GAI-12	Susquehanna and Tioga Turnpike	US Rt. 11, Salem Twp	Vernacular Highway	1807-1810	Determined Not Eligible by PHMC-BHP	Area 14 Area 12
GAI-23	Hower Property	1091 Salem Boulevard, Salem Twp	Frame Vernacular Residence	c.1910	Determined Not Eligible by PHMC-BHP	Area 14

A review of historic mapping indicates that by 1873 (Beers 1873) the major transportation routes in the project vicinity—the North Branch Pennsylvania Canal (141673/GAI-10), the adjacent rail line (155053/GAI-11), and the Susquehanna and Tioga Turnpike/US Route 11 (155056/GAI-12)—followed their present paths (Figure 3). In 1873, residential development is illustrated along US Route 11 in the general vicinity of Area 14 (see Figure 3).

A series of twentieth-century aerial photographs (1939, 1959 and 1969) and the 1955 Shickshinny Quadrangle indicate a residence in the location of GAI-23, in Area 14, while development in the remainder of the project APE was limited to cultivation (Figures 4, 5, 6, and 7). In the 1939 aerial photograph a farm lane cuts diagonally through the side lawn east of the house while a lines of trees borders the north edge of this lawn (see Figure 4). The

1959 aerial photograph depicts the current garage as well as a possible outbuilding to its north (see Figure 6). By 1969, the possible outbuilding was no longer extant. All three aerial photographs depict large cultivated fields to the north and west of this residential property (see Figures 4, 6, and 7).

The 1939 aerial photograph shows that the northern portion of Area 13 East (Excess Cut Disposal Area) was cultivated while the southern portion was wooded. The 1959 and 1969 aerial photographs depict this entire area as vegetated in sparse woods and/or brush.

Twentieth-century aerial photographs and mapping illustrate large cultivated fields in the vicinity of Area 1 and Area 7 North on the low terrace/floodplains along the North Branch Susquehanna River (see Figure 5). Trees border the North Branch Pennsylvania Canal (141673/GAI 10) and rail lines (155053GAI-11), which lie near the west edge of the floodplain, parallel to US Route 11 (155056/GAI-12). No additional development is illustrated in this area.

Archaeological Potential

GAI conducted a preliminary assessment of archaeological potential within the Third Supplemental Phase I APE based on a review of project mapping, the results of previous background research, and observations and evaluations of adjacent parcels during previous field studies of the BBNPP project area (see Figure 2). Based on these data, undisturbed, relatively level, well-drained portions of the project area were considered to have a moderate to high potential for prehistoric and historic archaeological resources, requiring subsurface Phase Ib archaeological testing to identify sites. Portions of the project area characterized by wetlands or slopes in excess of 15 percent were considered to have a low archaeological potential. These areas would not require systematic subsurface testing during Phase I investigations. Disturbed localities were determined to have no archaeological potential and were excluded from further investigation. Archaeological sites in upland portions of the study area were anticipated to be near-surface in nature. Low terrace/floodplain localities were considered to have potential for both near-surface and deeply buried archaeological resources.

GAI's May 31, 2011 scope of work estimated that the Third Supplemental Phase I project area comprised approximately 22.0 acres (8.9 hectares), consisting of approximately 4.0 acres (1.6 hectares) of moderate to high archaeological potential and 18.0 acres (7.3 hectares) of low potential or disturbance/no potential.

Assessments of archaeological sensitivity were refined during the course of Phase I fieldwork based on detailed, on-the-ground field observations. Additionally, the project area was slightly increased due to final calculations of parcel sizes and the inclusion of one additional test area.

Based on these revisions GAI's Third Supplemental Phase I APE comprised an approximately 25.7-acre (10.4-hectare) area including 4.6 acres (1.8 hectares) of moderate to high potential (see Figure 2, see Table 1). The remainder of the project APE consisted of approximately 17.5 acres (7.1 hectares) of low potential and 3.6 acres (1.4 hectares) of disturbance/no potential.

Figure 3. Project Area and Vicinity in 1873

*REDACTED Figure 3
Project Area and Vicinity in 1873*

Figure 4. Upland Project Areas and Vicinity in 1939 (Areas 13 East and 14)

*REDACTED Figure 4
Upland Project Areas and
Vicinity in 1939 (Areas 13 East
and 14)*

Figure 5. Project Area and Vicinity in 1955

*REDACTED Figure 5
Project Area and Vicinity in 1955*

Figure 6. Upland Project Areas and Vicinity in 1959 (Areas 13 East and 14)

*REDACTED Figure 6
Upland Project Areas and
Vicinity in 1959 (Areas 13 East
and 14)*

Figure 7. Upland Project Areas and Vicinity in 1969 (Areas 12, 13 East, and 14)

*REDACTED Figure 7
Upland Project Areas and
Vicinity in 1969 (Areas 12, 13
East, and 14)*

III. Objectives and Methods

Objectives

The goals of GAI's Third Supplemental Phase I survey were to identify, delineate and evaluate the potential National Register eligibility of previously unrecorded historic and prehistoric sites in new portions of the project APE.

Field Methods

Supplemental Phase I archaeological fieldwork was conducted between July 11 and 15, 2011 and on August 25, 2011. As noted above, GAI's Third Supplemental Phase I Scope of Work (May 31, 2011) assumed a 22.0-acre (8.9-hectare) project area with approximately 4.0 acres (1.6 hectares) of moderate to high archaeological potential.

Phase I field investigations began with an archaeological reconnaissance of the project APE to verify assessments of archaeological potential. Areas of moderate to high archaeological potential were identified and plotted on project mapping and were subject to systematic Phase Ib subsurface testing. Areas characterized by previous disturbance, steep slopes, or wetlands were noted and were excluded from Phase Ib testing.

Based on slight refinements in assessments of archaeological sensitivity and determinations of project size, GAI's Supplemental Phase I study area included 4.6 acres (1.8 hectares) of moderate to high archaeological potential within a 25.7-acre (10.4-hectare) overall project area. Figure 2 presents the final assessments of archaeological sensitivity within the project APE.

The Third Supplemental Phase I APE consisted of five parcels: Area 1, Area 7 North, Area 12, Area 13 East (Excess Cut Disposal Area), and Area 14 (see Figure 2). These lots varied from large wooded lots (e.g., Area 13 East) to residential parcels (e.g., Area 14), narrow areas of development/disturbance (e.g. Areas 12 and 1), and slivers of cultivated fields (e.g., Area 7 North).

GAI conducted systematic Phase Ib subsurface shovel testing within moderate to high potential portions of two parcels—Area 13 East and Area 14. Discrete Test Sections (e.g. Sections 1, 2, and 3) were numbered sequentially within Area 13 East (see Figure 2). Based on a review of current and previous project mapping in the vicinity of Area 7 North, it was determined that this extremely small, narrow parcel, representing a minor shift in the project boundary, extended only approximately 12 meters (39 feet) north of the edge of previously-investigated Area 7. It was concluded that the moderate to high potential portion of Area 7 North was encompassed by GAI's 2008 Phase Ib shovel testing of adjacent Area 7 (Munford et al. 2008). Accordingly, no additional subsurface testing of Area 7 North was conducted during the current study.

Due to poor ground surface visibility (e.g., woodlands or grass) Phase Ib survey within the project's moderate to high archaeological potential localities consisted of systematic shovel testing. Systematic shovel test pits (STPs) were excavated at 15-meter (49-foot) intervals within transects spaced 15 meters (49 feet) apart. GAI archaeologists used a compass and tapes to establish transects and shovel test locations within each test section. Judgmental STPs were excavated in select areas to confirm the presence of cultural artifacts or disturbed soils. When a shovel test yielded artifacts, radial STPs were excavated at 5-meter (16-foot) intervals around the initial positive findspot to further investigate the locality. GAI excavated 71 STPs during supplemental Phase I fieldwork.

STPs measured 50 cm (20 in) in diameter and were hand-excavated in natural strata. In upland settings (e.g., Area 13 East and Area 14) cultural resources were anticipated to be near-surface in nature and STPs extended to at least 10 cm (4 in) into the subsoil and 10 cm (4 in) below the deepest artifact recovery, with a maximum depth of approximately 50 cm (20 in) below surface. As described above, no subsurface testing was conducted within the single moderate to high potential locality (Area 7 North) situated on the low terrace/floodplain, due to previous testing in this area.

Excavated soils were screened through 0.6 cm (0.25-in) wire mesh for systematic artifact recovery. Recovered artifacts were bagged and labeled with appropriate provenience information. GAI archaeologists recorded results of individual STPs on standardized field forms, noting depths of soil horizons, soil texture and Munsell color, and the presence/absence of artifacts. STP locations were recorded on project maps and were backfilled upon completion.

Laboratory Methods

Laboratory Processing

Cultural materials collected during the Third Supplemental Phase Ib survey were transported to GAI's Archaeological Laboratory in Homestead, Pennsylvania, for processing and analysis. These materials were processed in accordance with the *Curation Guidelines* of the Pennsylvania Historical and Museum Commission (2005).

The initial processing stage consisted of checking artifact bags against the field-generated Field Specimen Log to confirm that all collected materials were present. Artifacts were temporarily placed in numerical order according to Field Specimen Number (FS#), providing a basis for processing, analysis, and curation. Artifacts were then cleaned, generally with water and a soft brush. Metal artifacts and perishable items were cleaned by dry-brushing. Non-cultural materials (i.e., pebbles) included in the artifact samples were recorded and discarded during this stage of processing or in later stages, as they were recognized. Cultural materials were placed on artifact-drying racks to air dry.

When dry, the artifacts within each provenience were sorted into basic artifact classes (i.e., glass, ceramics, metal) and were re-bagged accordingly in clean, perforated, 4-mil polyethylene bags. Bags were labeled with provenience information using a permanent ink marker. An acid-free paper tag with complete provenience information was also placed inside each artifact bag.

Specimens large enough in size were then labeled with the site number and the appropriate field specimen number (FS#). Labels were written in permanent ink and coated with PVA. After washing and labeling, artifacts were subject to the appropriate laboratory analysis.

Methods of Historic/Modern Artifact Analysis

Historic/modern artifacts recovered during the Second Supplemental Phase Ib survey were subjected to identification and analysis using GAI's Historic Coding scheme. This multivariate classification system codes for significant attributes of various artifact classes. Artifact analysis was focused on the creation of an inventory of artifact classes and types to examine issues of chronology and function for each site containing historic/modern components. A variety of analytical techniques was employed to synthesize artifact data including standard classification typologies developed by South (1977).

Once washed, artifacts were sorted into major material classes including ceramics, glass, and metal. The materials were then subjected to a preliminary analysis, which included a basic

description of artifacts by material class, functional group, and relevant attributes. Included among the recorded attributes, as applicable, are type, beginning and end dates of production, form, motif/decoration, color, manufacturing technique, functional group, base, finish, embossment, maker's mark/manufacturer, material, bore diameter, and pattern class and subclass (South 1977:95-96). Artifact dating was based on the identification of maker's marks, diagnostic-manufacturing methods, such as bottle mold seams, bottle pontil marks, ceramic bodies and glazes, and known dates of production.

Coded data, using unique codes for each artifact description, were entered into the Access database. This database was subsequently converted into the Excel computer program for purposes of data manipulation and table generation.

Glass artifacts were tabulated according to major groups (e.g., bottle glass, window glass, lamp glass, tableware, tumblers) and then separated into functional categories whenever possible. Dating information was based on the identification of diagnostic technological attributes (e.g., mold seams and evidence of snap-case manufacture) in addition to identifiable bottle embossments. Attributes recorded for glass artifacts include manufacturing technique, decoration, finish type, base type, color, and functional group. The beginning and end dates for datable attributes were determined. Maker's marks and embossments were described and dated, when possible.

Other historic/modern artifact classes include architectural debris (e.g., bricks, nails, window glass, etc.), clothing (type and materials identified when possible) and miscellaneous small finds. Where appropriate, attributes such as character, wear, decoration, and material were recorded for these artifacts.

IV. Supplemental Phase Ib Results

GAI’s Phase I survey of the Third Supplemental BBNPP project area involved an archaeological reconnaissance of the project APE and the excavation of 71 STPs. These investigations resulted in the identification of one historic period archaeological site (Site 36LU307) and produced 22 modern/historic artifacts. Table 3 presents a summary of Supplemental Phase Ib survey results by testing location. A brief description of testing results within each locality is provided below.

Table 3. Summary of Third Supplemental Phase Ib Survey Results by Testing Location

Testing Location	# STPs	# Positive STPs	Sites	Isolated Finds
Area 1	0	0	--	--
Area 7 North	0	0	--	--
Area 12	0	0	--	--
Area 13 East (Excess Cut Disposal Area)				
Section 1	9	0	--	--
Section 2	11	0	--	--
Section 3	2	0	--	--
Subtotal	22	0	--	--
Area 14	49	5	1	--
TOTAL	71	0	1	0

Area 1

Area 1 is a small, (0.75-acre/0.30-hectare) narrow, disturbed parcel bordering the southwest edge of previously-surveyed Area 7 (see Figure 1). It is situated on the low terrace/floodplain of the Susquehanna River east of US Route 11, in the northeast corner of the overall BBNPP project area. This test area represents a minor property boundary change identified during the BBNPP 2011 property survey. Phase I surface reconnaissance confirmed that this entire parcel has been disturbed by previous road construction associated with development of the PPL Riverlands Park and the Susquehanna Energy Visitor’s Center (see Figure 2). It comprises a portion of a paved roadway extending eastward from US Route 11 into the park (Photographs 4, 5, 6 and 7). Paved parking areas lie south of the roadway. Proposed project impacts will result from use as an access road for a proposed temporary construction laydown area located further east in Area 7.

Due to previous disturbances Area 1 was concluded to have no archaeological potential and was excluded from subsurface testing (see Figure 2).



Photograph 4. Area 1: Paved Access Road with Visitor’s Center to Right and Parking Areas to Left, US Route 11 in Distance, Facing West



Photograph 5. Area 1: Paved Access Road Crossing SSES Rail Spur and former Bloomsburg Division of the Delaware, Lackawanna & Western Railroad (155053/GAI-11), Facing East



Photograph 6. Area 1: Paved Access Road with Border of Rocks Marking Crossing over North Branch Pennsylvania Canal (141673/GAI-10), Facing East



Photograph 7. Area 1: Paved Road at Crossing of North Branch Pennsylvania Canal (141673/GAI-10), Facing South

Area 1 intersects two previously-recorded linear architectural and historical resources—the NRHP-eligible North Branch Pennsylvania Canal (141673/GAI-10) and the former Bloomsburg Division of the Delaware, Lackawanna & Western Railroad (155053/GAI-11), determined Not Eligible to the NRHP (see Photographs 5, 6 and 7). An SSES rail spur also cuts through Area 1

just west of the main rail line. The canal and railway were documented by GAI's previous architectural survey and results and recommendations were presented in the BBNPP Phase I/Phase II Technical (Munford et al. 2010). No architectural investigations of these resources were conducted as part of the current study.

Area 7 North

Like Area 1, Area 7 North is located on the low terrace/floodplain of the Susquehanna River in the northeast portion of the BBNPP project area (see Figures 1 and 2). It consists of a small (0.63-acre/0.25-hectare), narrow parcel that edges the northwest margin of previously-surveyed Area 7. The central portion of this test area is located within a cultivated field bordered to the west by a tree line. The NRHP eligible North Branch Pennsylvania Canal (141673/GAI-10) extends through the eastern edge of this parcel and the former Bloomsburg Division of the Delaware, Lackawanna & Western Railroad (155053/GAI-11) cuts through its west end.

Area 7 North represents a minor property boundary shift defined during review of revised project limits of disturbance mapping. This small parcel extends only approximately 12 meters (39 feet) north of the Area 7 boundary. Based on a review of current and previous project mapping it was concluded that the moderate to high potential portions of Area 7 North lie within the area investigated by GAI's 2008 systematic Phase Ib shovel testing of Area 7 (Munford et al. 2008). Accordingly, no additional testing within Area 7 North was performed during the Third Supplemental Phase I survey.

As noted above, the NRHP-eligible North Branch Pennsylvania Canal (141673/GAI-10) and the former Bloomsburg Division of the Delaware, Lackawanna & Western Railroad (155053/GAI-11), described for Area 1, also extend through Area 7 North (see Figures 1 and 2). No architectural investigations of these resources were conducted during the current study.

Area 12

Area 12 is a small (0.76-acre/0.31-hectare) linear parcel representing a section of US Route 11. It is located in an upland setting in the southern portion of the BBNPP project area, west of the transmission corridor (see Figures 1 and 2). Phase I surface reconnaissance confirmed that this test area has been disturbed by previous road construction (Photograph 8). Accordingly, Area 12 was concluded to have no archaeological potential and was excluded from subsurface testing (see Figure 2).



Photograph 8. Area 12: Test Area within US Route 11 Right-of-Way, Facing Northwest

US Route 11 was documented during GAI's previous architectural survey as 155056 (GAI-12) (Munford et al. 2010). PHMC-BHP has concluded that this resource is Not Eligible for listing in the NRHP and requires no further architectural investigation. No investigations of this resource were conducted during the current study.

Area 13 East (Excess Cut Disposal Area)

Area 13 East, the largest of the Third Supplemental Phase I test areas (19.26 acres/7.79 hectares), occupies an upland setting in the southern portion of the BBNPP project area, between US Route 11 and the North Branch Susquehanna River (see Figure 1). This parcel represents the eastern half of the on-site Excess Cut Disposal Area, associated with the proposed BBNPP power block relocation. The western half of the proposed Excess Cut Disposal Area was investigated during previous Phase Ib survey as part of Lots 93 F and 95. Area 13 East consists largely of a steeply-sloping, wooded parcel bounded to the south by a railway (documented during GAI's previous architectural survey as 1550553/GAI-11), and to the north and west, respectively, by previously-surveyed Lots 93 D and 93 F (see Figures 1 and 2). A large transmission corridor cuts northwest-southeast through the western portion of this wooded test area (Photographs 9 and 10). A retention pond and surrounding wetland lie in the central portion (Photograph 11).



Photograph 9. Area 13 East: Steep Wooded Slope at South Edge of Test Area, showing Railroad at Base of Slope to Left, Facing Southwest



Photograph 10. Area 13 East: Disturbed Transmission Corridor on Steep Slope, Facing Northeast



Photograph 11. Area 13 East: Retention Pond in Eastern Portion of Test Area, Facing East

GAI's Phase I archaeological reconnaissance of Area 13 East identified three small, relatively level benches, totaling 1.74 acres (0.70 hectares) that were concluded to have a moderate to high archaeological potential (see Figure 2; Photograph 12). Phase I shovel testing was conducted within each of these areas (Sections 1, 2, and 3). Section 1 is located in the eastern portion of the parcel, while Sections 2 and 3 are situated in its northwest and southwest corners.

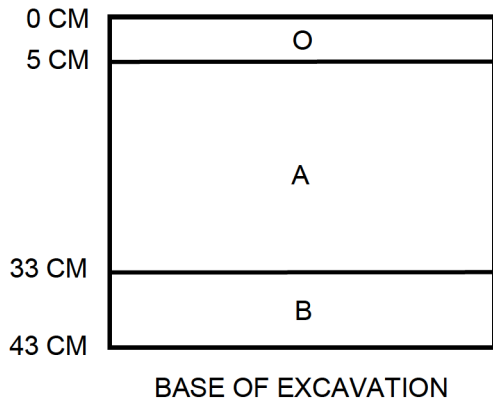


Photograph 12. Area 13: Wooded Bench (Section 1) in Eastern Portion of Parcel, Facing East

The remaining 17.52 acres (7.09 hectares) of Area 13 East were determined to have slopes in excess of 15 percent and a low archaeological potential (see Figure 2; see Photographs 9 and 10). The steep slopes also exhibited areas of disturbance associated with construction of the transmission corridor, the use of numerous ATV trails and previous core boring. These portions were excluded from shovel testing.

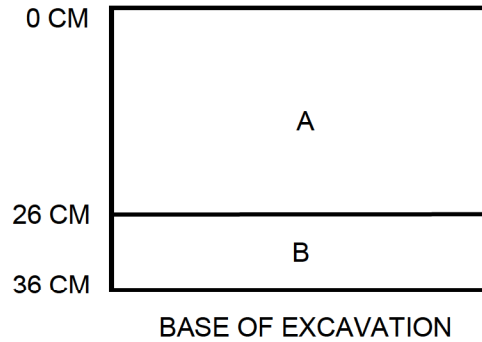
The moderate to high potential portions of Area 13 East were subject to 15-meter interval shovel testing as part of the current supplemental Phase I survey. GAI excavated 22 STPs in Area 13 East (nine STPs in Section 1, 11 STPs in Section 2, and two STPs in Section 3). Shovel test profiles typically consisted of an A-B or an O-A-B soil horizon sequence including an approximately 26 to 37 cm-thick brown to light olive brown sandy loam A horizon and a yellowish-brown sandy loam B horizon (Figure 8). STPs in Section 1 exposed an approximately 5-cm-thick very dark brown surface O horizon above the A-B horizons (see Figure 8, Section 1-STP A3). Shovel testing produced no cultural materials.

SECTION 1
STP A3



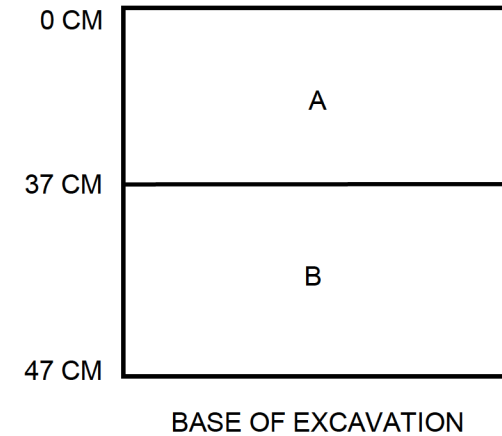
O – VERY DARK BROWN (10YR 2/2) SILT LOAM
 A – LIGHT OLIVE BROWN (2.5Y 5/4) SANDY LOAM WITH 20% SANDSTONE
 B – BROWNISH YELLOW (10YR 6/6) SANDY LOAM

SECTION 2
STP A6



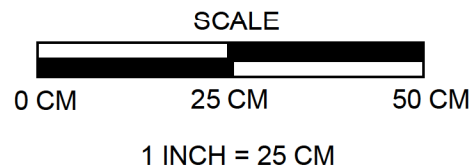
A – BROWN (10YR 5/3) SANDY LOAM
 B – BROWNISH YELLOW (10YR 6/8) SANDY LOAM


SECTION 3
STP A1



A – BROWN (10YR 4/3) SANDY LOAM
 B – BROWNISH YELLOW (10YR 6/8) SANDY LOAM

FIGURE 8. AREA 13 EAST,
REPRESENTATIVE SHOVEL TEST PROFILES (STPs A3, A6 AND A1)



 BELL BEND NUCLEAR POWER PLANT
UNISTAR NUCLEAR DEVELOPMENT, LLC.
gai consultants

DRWN: BAM
CHECKED: BAM

DATE: 08/18/2011
APPROVED: BAM

Area 14

Area 14, located east of Area 12, is a relatively level upland parcel lying east of the transmission corridor in the southern portion of the BBNPP project area (see Figure 1). It comprises a residential lot (Hower Property) fronting the north edge of US Route 11, as well as a section of this roadway (Photograph 13). The residential property includes two structures—a residence and a garage—separated by a gravel driveway (Photographs 14 and 15). A small front lawn borders



the roadway to the south, while larger, relatively level grassy lawns lie to the east and the north of the house (Photographs 16 and 17). A partially exposed line of cut stones (possible retaining wall) extends across the east lawn from the garage to the eastern edge of the property. The parcel is flanked by woodlands to the north and west, another residential property to the east, and US Route 11 to the south.

Photograph 13. Area 14: Overview of Residential Parcel (Hower Property) from South Edge of US Route 11, showing Garage and East and North Lawns, Facing Northwest



Photograph 14. Area 14: Rear Façade of House, Facing Southwest



Photograph 15. Area 14: Garage and House, Facing Southwest



Photograph 16. Area 14: Overview of East Lawn with Garage to Right, US Route 11 in Background, Facing Southeast



Photograph 17. Area 14: Overview from Edge of US Route 11 showing Garage with North Lawn in Background, Facing North

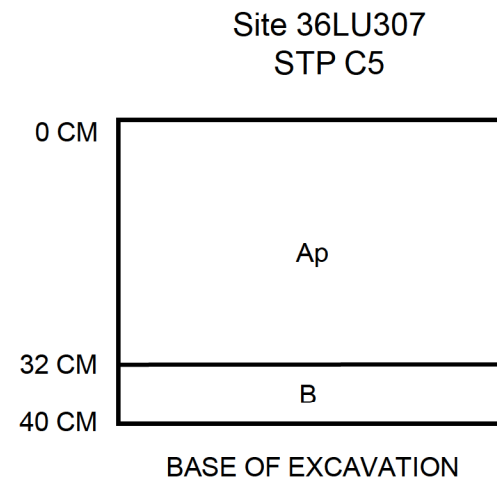
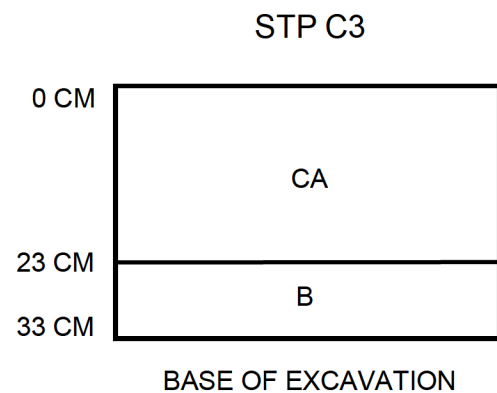
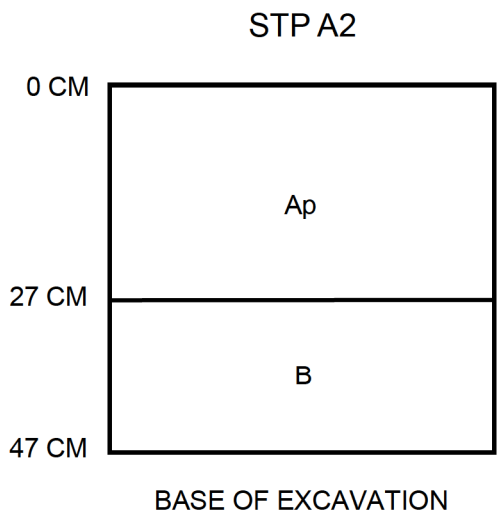
The residential property was documented as GAI-23 during GAI's previous architectural survey (Munford and Tuk 2008; Munford et al. 2010) and has been determined by PHMC-BHP as Not Eligible for listing in the NRHP (June 5, 2008 review letter, see Appendix B). Accordingly, no further architectural investigations of this resource are required.

Phase I archaeological reconnaissance confirmed that the residential lot (2.48 acres/1.0 hectares) had a moderate to high archaeological potential, requiring systematic Phase Ib shovel testing (see Figure 2). The remaining portion of Area 14 located within the US Route 11 right-of-way (1.86 acres/0.75 hectares) was disturbed by road construction and was excluded from subsurface testing.

GAI excavated a total of 49 STPs within Area 14, including 37 shovel tests placed at systematic 15-meter intervals throughout the lot, followed by 12 radial STPs in the north yard. Shovel testing resulted in the identification of one historic period site (Site 36LU307) in the north yard of the residence. Shovel tests exposed an Ap-B soil horizon sequence throughout the majority of this parcel. As described for STP A2, the typical profile consisted of a 27-cm-thick brown silt loam Ap horizon and a brownish-yellow sandy loam B horizon (Figure 9). STPs excavated along the northern edge of the residential lot exposed a gravelly B horizon.

Shovel testing identified localized disturbances associated with residential construction and use in proximity to the house and garage, as well as road construction disturbances along the edge of US Route 11. A surface fill deposit associated with a modern septic system was noted in STP E2 in the rear yard, approximately 5 meters (16 feet) north of the house. A disturbed area associated with a former septic field was also observed in the rear yard, approximately 7 to 20 meters (23 to 66 feet) north of the garage. A depression with loose chunks of concrete and large voids, representing a collapsed septic tank, was noted in this locality. The typical disturbed profile, as described for STP C3, located approximately 5 meters (16 feet) east of the garage, consisted of a CA-B soil horizon sequence. STP C3 exposed a 23-cm-thick very dark grayish-brown silt loam CA horizon (fill) with a high percentage of coal and cinders, above a brownish-yellow sandy loam B horizon (see Figure 9)

Site 36LU307 was identified during shovel testing of Area 14. This small historic period site was defined by a cluster of five positive STPs located in the north yard, approximately 25 to 30 meters (82 to 98 feet) north of the house and garage, and approximately 4 meters (13 feet) north of the disturbed former septic system. These STPs yielded 22 modern/historic artifacts from the A horizon. Site 36LU307 is described below.

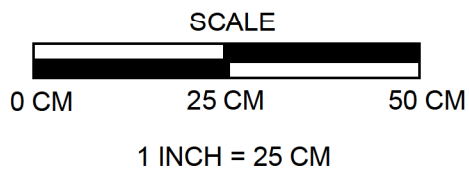



Ap –BROWN (10YR 4/3) SILT LOAM
 B –BROWNISH YELLOW (10YR 6/6) SANDY LOAM

CA –VERY DARK GRAYISH BROWN (10YR 3/2) SILT LOAM WITH HEAVY COAL AND CINDERS
 B –BROWNISH YELLOW (10YR 6/6) SANDY LOAM

Ap –BROWN (10YR 4/3) SILT LOAM
 B –BROWNISH YELLOW (10YR 6/6) SANDY LOAM

FIGURE 9. AREA 14,
 REPRESENTATIVE SHOVEL TEST PROFILES (STPs A2, C3, and C5)



 BELL BEND NUCLEAR POWER PLANT
 UNISTAR NUCLEAR DEVELOPMENT, LLC.

DRWN: BAM
 CHECKED: BAM

DATE: 09/1/2011
 APPROVED: BAM

Site 36LU307 (BBNPP Site 14)

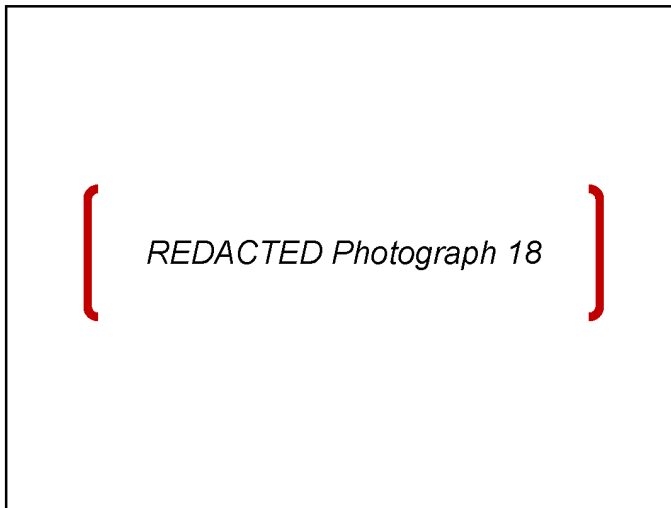
Location: Area 14

Site Type: Twentieth Century Artifact Scatter

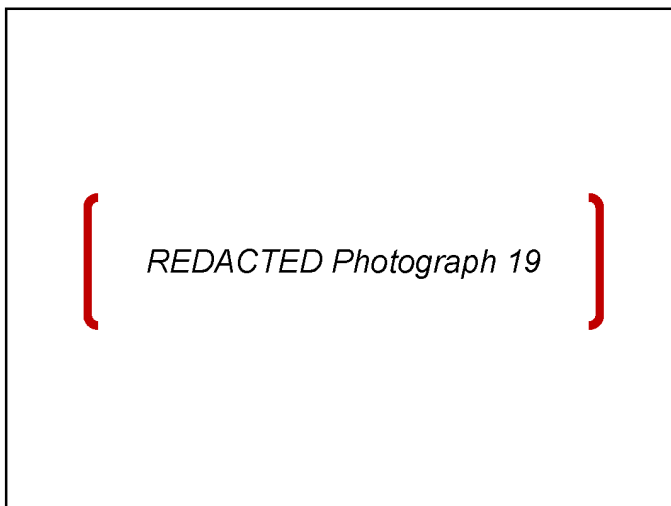
Site Size: 15 x 30 meters (49 x 98 feet)

Recommendations: Not NRHP Eligible/ No Further Work

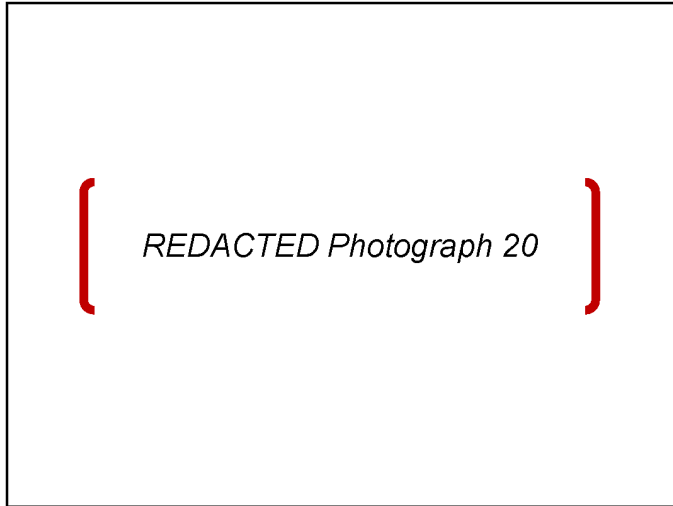
Site 36LU307 (BBNPP Site 14) was identified during Phase I shovel testing in Area 14. The site represents a twentieth century artifact scatter located in a residential rear yard on an upland flat north of US Route 11 and east of a transmission corridor (see Figure 2). The residential property (the Hower Property) was documented as GAI-23 during a previous architectural survey and contains a circa 1910 house and a garage; PHMC-BHP has concluded that this property is Not Eligible for listing in the NRHP (June 5, 2008 review letter; see Appendix B). A review of twentieth century aerial photographs (1939, 1959 and 1969) indicates that the site area has been previously cultivated (see Figures 4, 6, and 7). A tree line was located in the site vicinity in 1939 and the trees were removed by 1969. Based on Phase I investigations the site measures 15x30 meters (49x98 feet) and lies within a large grassy rear lawn approximately 25 to 30 meters (82 to 98 feet) north of the house and garage (Figure 10). The large rear yard is bordered farther to the north and west by woodlands, to the east by a narrow line of trees, and the to south by the house and garage (Photographs 18 and 19). Disturbances within the site vicinity include former cultivation, nearby residential construction, and the installation and use of a former septic system. The presence of the septic system was indicated by a surface depression, approximately 4 meters (13 feet) south of the site that exposed the collapsed concrete tank (Photograph 20).



Photograph 18. Site 36LU307: Overview from North Edge of Site showing House and Garage, US Route 11 in Background, Facing South



Photograph 19. Site 36LU307: Overview from South Edge of Site showing Grassy Rear Yard North of House and Garage, Facing North



Photograph 20. View of Disturbance (Collapsed Former Septic Tank) in Yard South of Site, Facing North

Phase 1b shovel tests were excavated at 15-meter intervals throughout Area 14, followed by 5-meter interval radial shovel testing around initial positive STPs. Of the 49 shovel test pits (STPs) excavated in the total parcel, a cluster of five STPs in the rear yard were positive, yielding a total of 22 historic artifacts (see Figure 10).

Shovel testing exposed an Ap-B soil horizon sequence within the site area. As described for STP C5, the soil profile included a 32-cm-thick brown silt loam Ap horizon and a yellowish-brown sandy loam B horizon (see Figure 9). Subsequent plowing in this location may be masking earlier ground disturbing activities associated with creation of the septic field and removal of trees. Artifacts were recovered exclusively from the Ap horizon.

The artifact assemblage is composed of a wide variety of specimens representing low frequencies of kitchen and activities-related specimens as well as architectural, personal, and indeterminate items (Table 4). The kitchen-related artifacts consist entirely of clear container glass (n=6). Activities-related items (n=6) include tin can fragments, a metal handle, an iron plate, and a rubber cap with carbon rod associated with an electric pet fence. Architectural specimens (n=4) consist of wire nails as well as window glass and a hinge fragment. The two personal items include a stainless steel wrist watch backing and a key fragment.

Table 4. Site 36LU307: Historic Artifact Pattern Analysis

Class	Sub-Class	Ware Type/Object	Count	%
Activities	Cans/Tins	tin can fragments	3	13.64%
	Livestock/ Pets	rubber cap and carbon rod for pet fence	1	4.55%
	Machine Parts/ Hardware	iron plate with strap	1	4.55%
	Other	handle	1	4.55%
		Activities Total	6	27.27%
Architecture	Door Parts	part of a hinge	1	4.55%
	Nails	nail, wire	2	9.09%
	Window Glass	window glass	1	4.55%
		Architecture Total	4	18.18%

Class	Sub-Class	Ware Type/Object	Count	%
Kitchen	Bottles/Jars	container glass	6	27.27%
Personal	Jewelry	watch backing	1	4.55%
	Keys	key	1	4.55%
		Personal Total	2	9.09%
Unidentifiable	Indeterminate	metal fragments	4	18.18%
Total			22	100.00%

The artifact assemblage includes only two likely pre-1950 specimens—one flat metal key (possibly for a trunk) and one iron plate with strap—both hand stamped out of sheets of metal. Nine clearly modern artifacts (40 percent of the total assemblage) were also recovered including four pieces of clear container glass, three tin can fragments, one stainless steel wrist watch backing, and one rubber cap/carbon rod associated with an electric pet fence.

Based on the results of Phase I investigations the site represents a low density twentieth century artifact scatter likely associated with the nearby residence.

Site 36LU307 (BBNPP Site 14) Recommendations

Based on the results of Phase I investigations, Site 36LU307 (BBNPP Site 14) represents a low-density twentieth century artifact scatter, located in a residential rear yard on an upland flat north of US Route 11. It lies approximately 25 to 30 meters (82 to 98 feet) north of a circa 1910 house and a garage. The site area has been used as a septic field and later cultivated; an area of surface disturbance associated with a former septic tank was documented just 4 meters (13 feet) to its south. No features or structural remains were identified during Phase I shovel testing and a review of historic maps and twentieth century aerial photographs indicated no former structures in this locality. The small artifact assemblage (n=22) was recovered exclusively from the Ap horizon and includes a wide variety of artifact types. Only two pre-1950 artifacts were identified and approximately 40 percent of the assemblage is modern in age. Based on documentation of disturbances the integrity of this site is concluded to be poor.

Based on the site’s reduced integrity, lack of structural remains, and mostly modern twentieth century artifact assemblage, GAI concludes that the potential for Site 36LU307 to contribute important information on the historic utilization of this area is low. GAI recommends that Site 36LU307 is Not Eligible to the National Register under Criterion D. No further archaeological investigations are recommended for this site.

Figure 10. Site 36LU307 showing Phase I Testing Locations

*REDACTED Figure 10
Site 36LU307 showing Phase I
Testing Locations*

V. Summary and Recommendations

GAI conducted Third Supplemental Phase I archaeological investigations within the Bell Bend Nuclear Power Plant (BBNPP), Luzerne County, Pennsylvania, for AREVA on behalf of UniStar. Supplemental Phase I fieldwork, performed between July 11 and 15, 2011 and on August 25, 2011, investigated approximately 4.2 acres (1.7 hectares) of moderate to high archaeological potential within the approximately 25.7-acre (10.4 hectare) project APE; an additional 0.43 acres (0.17 hectares) of moderate to high potential in Area 7 North was concluded to have been encompassed by GAI's previous 2008 Phase Ib survey of the adjacent Area 7 and was excluded from further investigation. Phase I fieldwork consisted of the excavation of 71 shovel test pits within two test areas (Area 13 East and Area 14).

Supplemental Phase Ib survey identified one historic period archaeological site (Site 36LU307) within the project area. Shovel testing produced 22 modern/historic artifacts from this site.

Based on Phase I results, GAI recommends that historic period Site 36LU307 is Not Eligible for listing on the NRHP and no further archaeological investigations are recommended at this site.

The Third Supplemental Phase I project area included one previously-recorded NRHP-eligible architectural resource—the North Branch Pennsylvania Canal (141673/GAI-10). No investigations of this resource were conducted during the current study. As has been recommended in a previous report (Munford et al. 2010), GAI recommends that an assessment of project impacts to this resource be included in a separate Criteria of Effects Evaluation Report to be prepared for the overall BBNPP project area.

References

Beers, D.G.

1873 *Atlas of Luzerne County, Pennsylvania*, Salem Township. A. Pomeroy & Co., Inc. Philadelphia.

Broyles, Bettye J.

1971 *Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia, 1964-1968*. West Virginia Geological and Economic Survey, Report of Archaeological Investigations, Morgantown.

Bush, R.D.

1981 *Soil Survey of Luzerne County, Pennsylvania*. USDA-Soil Conservation Service. Govt. Printing Office, Washington D.C.

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Hayes, D.R., D.C. Roper, J. Schuldenrein, and W.R. Stinson

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Lofstrum, E., J.P. Tordoff, and D.C. George

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Munford, Barbara A.

2008 Management Summary, Supplemental Phase Ib Cultural Resources Investigation, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, ER 81-0658-079, Prepared for AREVA NP Inc. and UniStar Nuclear Development LLC by GAI Consultants, Inc., Homestead, Pennsylvania.

Munford, Barbara A. and Jared N. Tuk

2008 Technical Report, Phase IA Cultural Resources Reconnaissance, Berwick, PA NPP-1, Areas 6, 7, 8 and Confers Lane Parcel, Luzerne County, Pennsylvania. Prepared for AREVA NP Inc. and UniStar Nuclear Development, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.

Munford, Barbara A., Lori A. Frye, Jared N. Tuk, and Matthew G. Hyland

2008 *Management Summary, Phase Ib Cultural Resources Reconnaissance, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania*. Prepared for AREVA NP Inc. and UniStar Nuclear Development, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.

- Munford, Barbara A., Lori A. Frye, and Michael P. Kenneally
2010 Technical Report, Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, ER 81-0685-079. Prepared for UniStar Nuclear Energy, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.
- Munford, Barbara A.
2010 Addendum Report, Second Supplemental Phase Ib Cultural Resources Investigation, Power Block Relocation, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, ER 81-0685-079. Prepared for AREVA NP Inc. and UniStar Nuclear Energy, LLC by GAI Consultants, Inc., Homestead, Pennsylvania.
- Pennoni Associates, Inc.
2009 Overall Re-Zoning Plan A-1, Prepared for PPL, Salem Township, Luzerne County (6/2/09), Wilkes-Barre, Pennsylvania.
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2011a Area to Characterize, PPL Bell Bend, LLC, Bell Bend Nuclear Power Plant, Salem Township, PA, Pennoni Associates, Inc. 5/11/11
- Pennoni Associates, Inc.
2011b Limit of Disturbance, PPL Bell Bend, LLC, Bell Bend Nuclear Power Plant, Salem Township, PA, Pennoni Associates, Inc., 8/25/11
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2000 *Physiographic Provinces of Pennsylvania, Map 13*. Commonwealth of Pennsylvania, Department of Conservation and Natural Resources, Bureau of Topographic and Geologic Survey.
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1955 Berwick, Pennsylvania, 7.5-Minute Topographic Quadrangle (Photorevised 1969 & 1976).

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Wetherbee, Jean

1980 *A Look at White Ironstone*. Wallace-Homestead Book Co., Des Moines, Iowa

APPENDIX A
BHP REPORT SUMMARY FORM



Archaeological Report Summary Form

ER# _____
DATE <u>9/15/2011</u>

PROJECT CHECKLIST: Please fill out a copy of this checklist and include it with your initial report submission,(including with management summaries or draft reports). This form may be downloaded and expanded as needed, but please do not eliminate any fields.

- Report Title** Addendum Report, Third Supplemental Phase I Cultural Resources Investigation, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, Prepared for AREVA NP Inc. and UniStar Nuclear Development, LLC, by GAI Consultants, Inc. Homestead, Pennsylvania.
- PI** Barbara A. Munford (MA, PhD) /**Firm** or Institution GAI Consultants, Inc.
- Report Date** (Month/Day/Year) September 15, 2011
- Number of Pages** ~45 + appendices
- Agency Name** NRC Federal State
- Project Area County/Municipality** (list all)

County	Municipality
Luzerne	Salem Township

- Project Area Drainage(s)**, (list all)

Sub-basin	Watershed
Central Susquehanna (Number 5)	Toby-Wapwallopen Creek (B) Nescopeck Creek (D)

- Project Area Physiographic Zone(s)** (list All) (Use DCNR Map 13 compiled by W.D. Sevon, Fourth Edition, 2000.)

Physiographic Zone
Ridge and Valley Province, Susquehanna Lowlands Section



Pennsylvania Historical & Museum Commission
Bureau for Historic Preservation • State Historic Preservation Office

Archaeological Report Summary Form

ER# _____
DATE 9/15/2011

9. **Report Type** (some reports are combinations, check as many as apply to this report)

- | | |
|---|---|
| <input type="checkbox"/> Phase IA/Sensitivity Study | <input type="checkbox"/> Historic Structures |
| <input checked="" type="checkbox"/> Phase I | <input type="checkbox"/> Geomorphology |
| <input type="checkbox"/> Phase II | <input type="checkbox"/> Determination of Effects |
| <input type="checkbox"/> Phase III | <input type="checkbox"/> Other _____ |

10. **Total Project Area** 10.4 hectares

11. **Low Probability/Disturbed Areas** 8.5 hectares = 82 % of project area

12. **Phase I Methods used for total project** (check as many as apply)

- shovel tests, controlled test units/deep tests,
 surface survey, informant interview, other:

13. **Total Number of Sites** Encountered/Phase I one (1)

Total Sites Tested/Phase II _____

Total Sites Excavated/Phase III _____

14. Updated PASS Information: Please complete an updated PASS form **for each site** reported by this report. Updated forms need only include the new information and the site number and name.

15. PASS Site Specific Information: In addition, the following pages must also be completed **for each site**. Complete only the portions that pertain to the current report. If the report is a stand-alone Phase II, you do not need to fill in the Phase I methods, since they should have been included in the summary form for the previous report.

15. PASS Site Specific Information

Please complete the following **for each site** reported by this report.

PASS NUMBER 36LU307

A. Phase I Methods (how the site was located - check as many as apply)

- shovel tests, controlled test units/deep tests,
 surface survey, informant interview, other:

B. Phase II Methods

- controlled surface collection
 controlled excavation w. screening of plowzone, > 5 units
 mechanical stripping of plowzone (_____%)
 deep excavation units
 remote sensing
 other _____

square meters of site tested: _____ sq. m

% of site area tested: _____ %

C. Phase III Methods

- controlled surface collection
 controlled excavation w. screening of plowzone, > 5 units
 mechanical stripping of plowzone _____%
 deep excavation
 block excavations
 remote sensing
 environmental reconstruction (soils, floral, pollen)
 dietary reconstruction (floral, faunal)
 intensive lithic analysis (functional)
 intensive lithic analysis (technological)
 raw material sourcing
 ceramic analysis (seriation)
 ceramic analysis (functional)
 blood residue
 other _____

square meters of site tested: _____ sq. m

% of site area tested: _____ %

Recommendations (normally completed only after Phase II):

-- NR Eligibility recommendation

 eligible, ineligible, undetermined

-- reasons for determination (check as many as apply; expand as needed)

 eligible: Criterion A. Explain _____ eligible: Criterion B. Explain _____ eligible: Criterion C. Explain _____ eligible: Criterion D: settlement patterning (intersite patterning) intrasite artifact patterning features radiocarbon dating organic preservation evidence of culture change through time stratified temporally discrete clusters burials/human remains technological economics ethnicity dietary other(specify): _____ ineligible disturbed ephemeral occupation redundant information undatable other (specify): _____**E. Artifacts/Collections** will be donated to the State Museum of Pennsylvania gift agreement from private owner enclosed**- or -** transfer of responsibility from State Agency enclosed election of repository from Federal Agency enclosed artifacts washed/marked/cataloged following State
Museum guidelines

-- collection will be submitted by _____(date)

will be donated to other approved repository (**this option must be negotiated with the BHP and State Museum or stated as stipulation in MOA**)

curation agreement enclosed

artifacts washed/marked/cataloged following host guidelines

-- collection will be submitted by _____(date)

will be retained by land owner (whole or partial collection)

expanded documentation enclosed for items retained

proof enclosed that owner was notified of the option to

donate the collection to the State Museum and chose to retain the collection:

letter from owner indicating desire to retain collection

- or -

agency or representative discussed donation option with owner on _____(date)

- and -

copy of letter and certified letter receipt indicating that the owner was offered this option in writing.

APPENDIX B
PROJECT CORRESPONDENCE



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phunc.state.pa.us

June 5, 2008

John E. Price
UniStar Nuclear Energy
750 E. Pratt Street, 14th floor
Baltimore, MD 21202

**TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER**

Re: ER 81-0658-079-H
NRC: Proposed Bell Bend Nuclear Power Plant
Salem Township, Luzerne County
Phase IA Cultural Resources Survey

Dear Mr. Price:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

We agree with the recommendations of the Phase IA archaeological study and look forward to working with you further as the successive phase of work proceeds.

We have reviewed the preliminary information concerning historic structures in the Area of Potential Effect of this project. Based on this information, no further survey work will be needed on the following properties.

1. Beach Grove Cemetery, Salem Twp., Luzerne County
2. Stone Walls, Bell Bend Rd., Salem Twp., Luzerne County
3. House 65 Bell Bend Rd., Salem Twp., Luzerne County
4. House, 115 Bell Bend Rd., Salem Twp., Luzerne County
5. House, 189 Bell Bend Rd., Salem Twp., Luzerne County
6. House, 193 Bell Bend Rd., Salem Twp., Luzerne County
7. House, 1021 Salem Blvd., Salem Twp., Luzerne County
8. Bell Bend Efficiency Apartments, 1043 Salem Blvd., Salem Twp., Luzerne County
9. House, 1047 Salem Blvd., Salem Twp., Luzerne County
10. House, 1091 Salem Blvd., Salem Twp., Luzerne County
11. House, 1069 Salem Blvd., Salem Twp., Luzerne County
12. Barn & Trailer, 998 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County
13. House, 906 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County

Page 2
J, Price
June 5, 2008

14. House, 809 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County
15. House, 175 E. Cherry Rd., Nescopeck Twp., Luzerne County
16. House, 598 River Rd., Nescopeck Twp., Luzerne County
17. House, 546 River Rd., Nescopeck Twp., Luzerne County
18. House, 520 River Rd., Nescopeck Twp., Luzerne County
19. House, 510 River Rd., Nescopeck Twp., Luzerne County
20. Quarry, River Rd., Nescopeck Twp., Luzerne County
21. Bridge, N. Market St., Salem Twp., Luzerne County

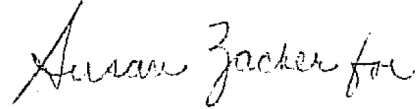
Additional survey information must be supplied for the following properties. Please submit a Historic Resource survey form for the following resources. This form and instructions can be obtained from our website at www.phmc.state.pa.us/bhp.

1. United Reformed and Lutheran Church, Conyngham Twp., Luzerne County
2. Woodcrest, Conyngham Twp., Luzerne County
3. Hummel Farmstead, Salem Twp., Luzerne County
4. Stone Arch Bridge, Salem Twp., Luzerne County
5. Kiliti Farm, Salem Twp., Luzerne County
6. Heller Farm, Salem Twp., Luzerne County
7. North Market Street Bridge, Salem Twp., Luzerne County
8. North Branch of the Pennsylvania Canal in the APE, Salem Twp., Luzerne County
9. Canadian Pacific/Bloomsburg Division of the Delaware, Lackawanna & Western Railway in the APE, Salem Twp., Luzerne County
10. Susquehanna and Tioga Turnpike, Salem Twp., Luzerne County
11. House, 29 Bell Bend Rd., Salem Twp., Luzerne County
12. House, 49 Bell Bend Rd., Salem Twp., Luzerne County
13. Valley View Farm, 1022 Salem Blvd., Salem Twp., Luzerne County
14. Michaels Farm, 4252 N. Market St., Salem Twp., Luzerne County
15. House, 1405 Berwick-Hazleton Highway, Nescopeck Twp., Luzerne County
16. PA Railroad-Sunbury Line/Delaware & Hudson Railroad, Nescopeck Twp., Luzerne County
17. Farm, 950 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County
18. House, 944 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County
19. Farm, 783 Berwick-Hazleton Hwy, Nescopeck Twp., Luzerne County
20. Farm, 212 E. Cherry Rd., Nescopeck Twp., Luzerne County
21. Wapwallopen Historic District, Wapwallopen, Luzerne County
22. Farm, 811 River Rd., Nescopeck Twp., Luzerne County

Page 3
J. Price
June 5, 2008

If you need further information in this matter please consult Susan Zacher at (717) 783-9920.

Sincerely,



Douglas C. McLearn, Chief
Division of Archaeology &
Protection

DCM/smz

RECEIVED



Commonwealth of Pennsylvania
 Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
 Commonwealth Keystone Building, 2nd Floor
 400 North Street
 Harrisburg, PA 17120-0093
 www.phmc.state.pa.us

MAR 22 2010

GAI CONSULTANTS INC.
 PROJ. NO. 080204.10

March 17, 2010

CC: JNT
 BAM
 BR
 CF
 MPK

Hannah L. Cole
 GAI Consultants, Inc.
 385 E. Waterfront Drive
 Homestead, PA 15120-5005

TO EXPEDITE REVIEW USE
 GHP REFERENCE NUMBER

Re: ER 81-0658-079-U
 NRC: Bell Bend Power Plant Phase IB Investigations Management
 Summary: Historic Resources
 Conyngham, Nescopeck, Salem Townships, Luzerne County

Dear Ms. Cole:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

We concur with the findings of the agency that the following resources are eligible for the National Register of Historic Places.

1. United Reformed & Lutheran Church (Old River Church), Conyngham Township, Luzerne County: This church is an excellent example of the Federal style of architecture and meets National Register criterion C.
2. Woodcrest, 3209 SR 239, Conyngham Township, Luzerne County: This farms is eligible for its local agricultural significance and meets National Register criterion A. It may also be eligible under criterion C, for it architectural significance, however, information and photographs of its interior would need to be submitted to evaluate for this criterion.

We disagree with the findings of the agency concerning the eligibility of the following resource. In our opinion, this resource is eligible for the National Register of Historic Places.

3. North Branch of the Pennsylvania Railroad, Salem Township, Luzerne County: This intact section of the canal reflects the significance of the canal in the mid to late 19th century and therefore is eligible under National Register criterion A.

Page 2
H. Cole
March 17, 2010

We concur with the findings of the agency that the following properties are not eligible for the National Register of Historic Places. Based on the information supplied they are not historically or architecturally significant.

4. Thrash Farm, 783 Berwick-Hazleton Highway, Nescopeck Township, Luzerne County
5. Fortner Farm, 212 E. Cherry Road, Nescopeck Township, Luzerne County
6. Croll Farm, 811 River Road, Nescopeck Township, Luzerne County
7. Raber Farm, 950 Berwick-Hazleton Highway, Nescopeck Township, Luzerne County
8. Michaels Farm, 4252 N. Market Street, Salem Township, Luzerne County
9. Heller Farm, 4210 N. Market Street, Salem Township, Luzerne County
10. Valley View Farm, Salem Township, Luzerne County
11. Susquehanna & Tioga Turnpike, Salem Township, Luzerne County
12. Jameson Farm, 62 Kiliti Road, Salem Township, Luzerne County

We disagree with the findings of the agency concerning the National Register eligibility of the following resources. In our opinion, these railroads are not eligible.

13. Pennsylvania & Sunbury Line of the Delaware and Hudson Railroad, Nescopeck Township, Luzerne County: This line was a connection between major Railroad lines of the Pennsylvania Railroad. While Sunbury, Wilkes-Barre and Hazleton Were all major economic centers at the time, it does not make this spur Significant nor played a significant role in the transportation of anthracite coal.
14. The Bloomsburg Division of the Delaware, Lackawanna and Western Railroad, Salem Township, Luzerne County: Based on the information provided the Significance of this section of the DL& W is unproven. It does not appear to have provided significant competition to other railroad lines or to have been an important carrier in relation to other railroads.

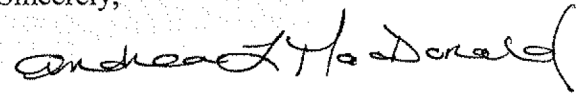
We are unable to complete our review of the following resources until additional information is submitted.

15. Stone Arch Bridge/North Market Street Bridge, Salem Township, Luzerne County: Please supply the correct length measurement of this bridge (see attached guidance for measuring bridges). The submission states that there are only 3 intact stone arch bridges in the county. Our on-line Geographical Information Submission shows that there are over 50 stone arch bridges. Please evaluate this bridge in the context of the bridge survey.
16. Wapwallopen Historic District (potential), Conyngham Township, Luzerne County: Please contact our agency to schedule a site visit to verify the presence and boundaries of a historic district.

Page 3
H. Cole
March 17, 2010

If you need further information in this matter please consult Susan Zacher at (717)
783-9920.

Sincerely,

A handwritten signature in black ink that reads "Andrea L. MacDonald". The signature is written in a cursive style with a large, stylized initial 'A'.

Andrea L. MacDonald, Chief
Division of Preservation Services

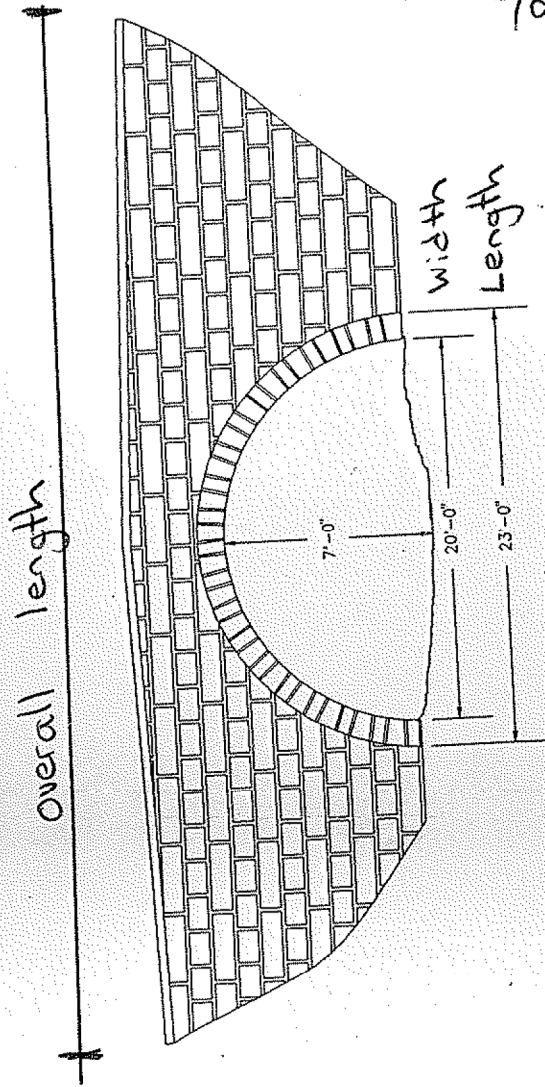
Enclosure
AM/smz

Enclosure for Bridge Measurements

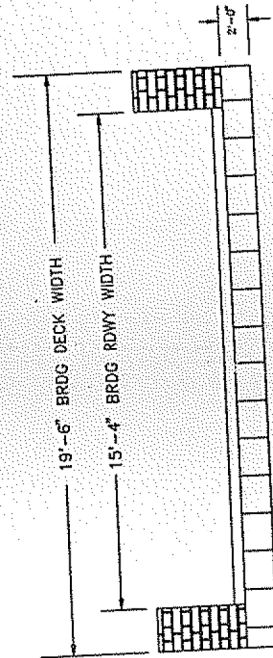
40 7420 0486 2502

Stone Arch Bridge (GAI-06) & North
Market St Bridge (GAI-07), Salem Twp, Luzerne Co

Example for
Bridge Measuring



ELEVATION



SECTION "A-A"

Luzerne County Road and Bridge Department		Checked JJB	DWG 2/2
BRIDGE # 42502 New Columbus Borough		Drawn GAS	Date August-94
		Scale Noted	



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

20 May 2011

Rocco R. Sgarro
PPL Bell Bend, LLC
38 Bomboy Lane, Suite 2
Berwick, PA 18603

Re: ER# 81-0658-079-CC
Addendum Report, Second Supplemental Phase Ib
Cultural Resource Investigation, Power Block
Relocation, Bell Bend Nuclear Power Plant, Salem
Township, Luzerne County, Pennsylvania

Dear Mr. Sgarro:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

This report meets our standards and specifications as outlined in *Guidelines for Archaeological Investigations in Pennsylvania* (BHP 2008) and the Secretary of the Interior's Guidelines for Archaeological Documentation. This report documents two previously unrecorded archaeological sites with the project area. These sites include **GAI Site 12 (36Lu301)** and **GAI Site 13 (36Lu302)**.

We agree that **36Lu301** is potentially eligible for inclusion on the National Register of Historic Places. If this site cannot be avoided by project activities, then a Phase II investigation is necessary to formally determine site eligibility.

We agree that **36Lu302** is not eligible for inclusion on the National Register. In our opinion, no further archaeological work is necessary at this site.

Please send four additional copies of the final report (three bound and one unbound) for our files and distribution to the repositories.

Page 2
20 May 2011
ER# 81-0658-079-CC

If you need further information in this matter please consult Steven McDougal at (717) 772-0923.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas C. McLearen". The signature is fluid and cursive.

Douglas C. McLearen, Chief
Division of Archaeology &
Protection

for

cc: B. Munford, GAI Consultants, 385 E. Waterfront Dr., Homestead, PA
S. Imboden, NRC, Mailstop T-6D38M
J. Davis, NRC, Mailstop O-11F1

DCM/srm



Commonwealth of Pennsylvania
 Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
 Commonwealth Keystone Building, 2nd Floor
 400 North Street
 Harrisburg, PA 17120-0093
www.phmc.state.pa.us

TO EXPEDITE REVIEW USE
 BHP REFERENCE NUMBER

23 August 2011

Rocco R. Sgarro
 PPL Bell Bend, LLC
 38 Bomboy Lane, Suite 2
 Berwick, PA 18603

Re: ER# 81-0658-079-BB
 NRC: Phase I Cultural Resources Investigation and
 Phase II National Register Site Evaluations, Bell
 Bend Nuclear Power Plant, Salem Township,
 Luzerne County, Pennsylvania

Dear Mr. Sgarro:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

Archaeological Resources

This report meets our standards and specifications as outlined in *Guidelines for Archaeological Investigations in Pennsylvania* (BHP 2008) and the Secretary of the Interior's Guidelines for Archaeological Documentation. We agree that the following sites are not eligible for inclusion on the National Register of Historic Places: **36Lu279, 36Lu280, 36Lu281, 36Lu283, 36Lu285, and 36Lu286.**

It is our opinion that site **36Lu288** is eligible for inclusion in the National Register of Historic Places. The presence of intact, dateable cultural features in the northern half of the site, one of which was located within a buried A horizon, indicates a sufficient level of integrity to warrant this designation. Use of the **northern half of the site** as a lay-down area, where cultural features were found and artifact concentrations were highest, should be considered an adverse effect. We strongly recommend that this portion of the site be avoided by construction activities either by fencing off the area as a restricted location or by use of geotextile and fill as a protective measure. If these measures cannot be undertaken, then Phase III excavation should be undertaken to mitigate the adverse effect of the project to the eligible resource. No features were found in the **southern half of the site** and artifact concentrations were very low. As a result, use of this location as a lay-down area should be considered no adverse effect. If the project scope is

changed such that there will be impacts below 80 cm in any part of the site area, additional archaeological investigation will be necessary to determine whether there will be adverse effects to intact cultural material.

Historic Structures

It is the opinion of the State Historic Preservation Officer that the following properties are not eligible for listing in the National Register of Historic Places:

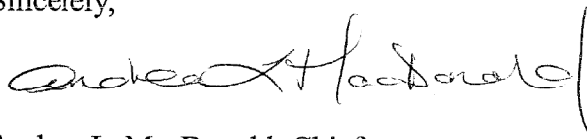
House (Red Brick Studios), Key# 155064
North Market Street Bridge, Key# 155055

Stone Arch Bridge, Key# 155054

The Wapwallopen Historic District merits a site visit to properly evaluate its National Register eligibility potential. You will need to schedule a site visit with the Bureau staff.

If you need further information in this matter concerning archaeological resources please consult Steven McDougal at (717) 772-0923. For information concerning historic structures please consult Ann Safley at (717) 787-9121.

Sincerely,



Andrea L. MacDonald, Chief
Division of Preservation Services

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ALMacD/srm

APPENDIX C
PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY FORM

*REDACTED Appendix C
Pennsylvania Archaeological Site
Survey Form*

APPENDIX D
ARTIFACT CATALOG

Controlled Document

Site 36LU307

Historic Artifact Catalog

Fs	Spec#	Area	Stp	Strat	Lev	Elev	Count	Material	Class	Sub-Class	Ware/Object	Decor/Manuf	Color	Motif/Emb	Part	Form	Beg	End	Reference	
1	.001	14	C5	A	1	0-32 cmbgs	1	metal	Architecture	Door Parts	door handle									
1	.002	14	C5	A	1	0-32 cmbgs	1	metal	Personal	Keys	key									
1	.003	14	C5	A	1	0-32 cmbgs	1	metal	Architecture	Door Parts	part of a hinge	placement for three screws or nails, handmade								
1	.004	14	C5	A	1	0-32 cmbgs	1	glass	Kitchen	Bottles/Jars	container glass		clear		body	container				
1	.005	14	C5	A	1	0-32 cmbgs	1	glass	Kitchen	Bottles/Jars	container glass		aqua, light		body	container				
1	.006	14	C5	A	1	0-32 cmbgs	1	glass	Architecture	Window Glass	window glass		clear							
2	.001	14	C6	A	1	0-30 cmbgs	1	rubber; carbon	Activities	Livestock/ Pets	rubber cap and carbon rod for pet fence	embossed	red	"general dog f..... Pat....."						
3	.001	14	D3	A	1	0-27 cmbgs	1	glass	Kitchen	Bottles/Jars	container glass		clear		body	container				
3	.002	14	D3	A	1	0-27 cmbgs	1	metal	Architecture	Nails, Spikes, Etc.	nail, wire						1880	2011	Nelson 1968; IMAC 1984	
4	.001	14	E4	A	1	0-30 cmbgs	1	cast iron	Activities	Machine Parts/ Hardware	metal plate with strap									
4	.002	14	E4	A	1	0-30 cmbgs	3	metal	Activities	Cans/Tins	tin can fragments									
5	.001	14	R5	A	1	0-30 cmbgs	1	metal	Architecture	Nails, Spikes, Etc.	nail, wire						1880	2011	Nelson 1968; IMAC 1984	
5	.002	14	R5	A	1	0-30 cmbgs	4	metal	Unidentifiable	Indeterminate	metal fragments									
5	.003	14	R5	A	1	0-30 cmbgs	1	stainless steel	Personal	Jewelry	watch backing									
5	.004	14	R5	A	1	0-30 cmbgs	2	glass	Kitchen	Bottles/Jars	container glass		clear		body	container				
5	.005	14	R5	A	1	0-30 cmbgs	1	glass	Kitchen	Bottles/Jars	container glass	embossed	clear iridescent	Dendritic pattern	base	stemware				
TOTAL							22													