

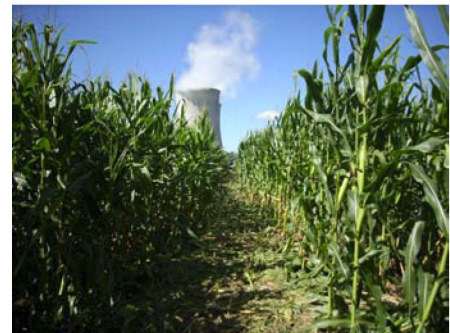
Management Summary

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

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



GAI Project No. C080204.10

November 17, 2008



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I. Introduction and Project Overview

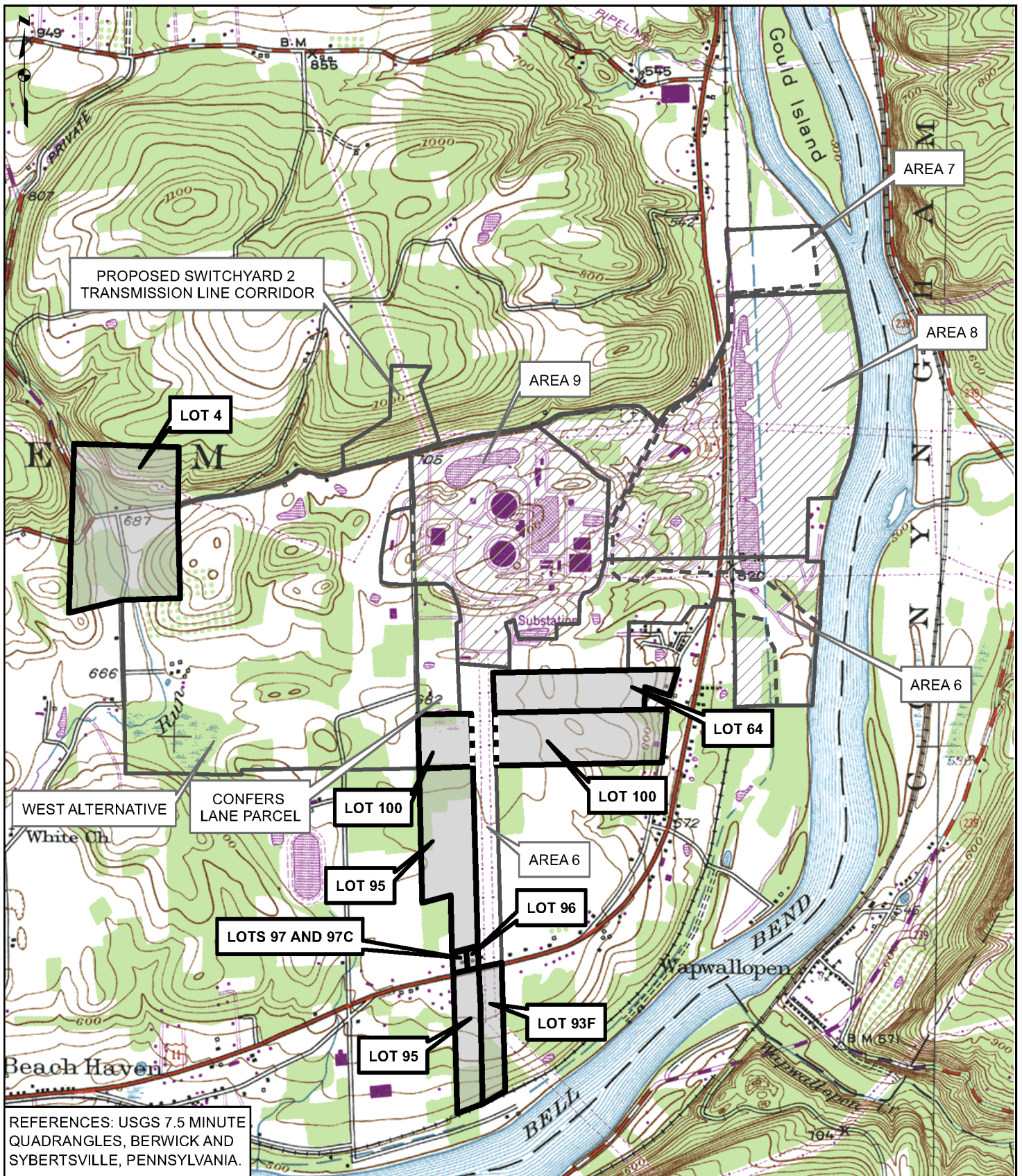
Project Summary

Between August and November 2008, GAI Consultants, Inc. (GAI) conducted Supplemental Phase Ib Cultural Resources Investigations of the Bell Bend Nuclear Power Plant (BBNPP), Luzerne County, Pennsylvania, for UniStar Nuclear Development, LLC, a subsidiary of Constellation Energy (UniStar Nuclear), under a contract to AREVA NP Inc. (AREVA). 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). UniStar Nuclear proposes the potential development of a nuclear power generation unit in this locality. GAI conducted a Phase Ib survey of the initial 630-acre (255-hectare) project area (West Alternative, Areas 6, 7, and 8, and Confers Lane Parcel) between May and August 2008, and presented the results in a Phase Ib Management Summary (Munford et al. 2008) which has been submitted to the Pennsylvania Historical and Museum Commission-Bureau for Historic Preservation (PHMC-BHP) for review. Supplemental Phase Ib studies consisted of an archaeological survey of approximately 263 acres (106 hectares) of new lots bordering the initial project area (Figure 1). Proposed construction activities will result in both temporary and permanent impacts (e.g., grading, fill, construction lay down, parking, and roadway construction) within portions of this supplemental project area. The current document provides preliminary results of GAI's Supplemental Phase Ib survey and recommendations for additional work.

The goals of GAI's Supplemental Phase Ib investigation were to determine the presence of 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 Supplemental Phase Ib study area consists of seven lots (Lots 4, 64, 93F, 95, 96, 97/97C, and 100) located in upland settings south and west of the initial project area (see Figure 1, Photographs 1 and 2). Six of these lots are situated south of Area 6 and the existing SSES facility, while one lot (Lot 4) lies at the northwest corner of the project's West Alternative. The Supplemental Phase Ib survey involved the excavation of 1,937 shovel test pits (STPs) in portions of the project area considered to have a moderate to high potential to yield archaeological sites.



Photograph 1. Overview of Project Area in Cornfield, Lot 100, Facing North



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

PROJECT LOCATION

LUZERNE COUNTY, PENNSYLVANIA

LEGEND

- SUPPLEMENTAL PHASE 1b AREA
- PHASE 1b PROJECT AREAS
- EXCLUDED AREA

0 1,000 2,000 4,000 Feet

FIGURE 1
SUPPLEMENTAL PHASE 1b PROJECT

BELL BEND NUCLEAR POWER PLANT
UNISTAR NUCLEAR DEVELOPMENT, LLC.

DRAWN BY: JRF DATE: 10/29/08
CHECKED: MDO APPROVED: BAM



Photograph 2. Overview of Project Area in Fallow Field, Lot 4, Facing South

The Supplemental Phase Ib survey did not identify any archaeological sites within the 263-acre supplemental project area. GAI’s previous architectural survey recorded seven architectural and historical resources situated with the footprint of this project area, including two resources recommended as eligible to the NRHP. Table 1 presents a summary of Supplemental Phase Ib survey results.

Table 1. Summary of Supplemental Phase Ib Archaeological Survey Results

Lot	Acres	# STPs	Sites	Isolated Finds	Previously Surveyed Architectural Resources in APE
Lot 4	86.8	250	0	0	3
Lot 64	34.5	114	0	0	1
Lot 93F	15.7	79	0	0	1*
Lot 95	61.8	668	0	0	1*
Lot 96	1.2	19	0	0	1
Lot 97/97C	1.5	18	0	0	0
Lot 100	61.1	789	0	0	1
Total	262.6	1,937	0	0	7

*linear resource bounds portions of Lots 93F and 95

GAI’s Supplemental Phase Ib survey represents the fourth cultural resources study of the proposed BBNPP project. GAI conducted Phase Ia cultural resources investigations of 1,271 acres (514 hectares) of potential project alternatives in two episodes—June 2007 and January 2008 (GAI 2007, Munford and Tuk 2008). As noted above, a Phase Ib survey of the initial 630-acre (255-hectare) project area was performed between May and August 2008 (Munford et al. 2008). A full report on both Phase Ib surveys (initial and supplemental) will be included in a subsequent, combined Phase I/Phase II technical report.

Area of Potential Effect

The Area of Potential Effect (APE) for GAI's Supplemental Phase Ib Archaeological Survey consists of the 262.6-acre (106.3-hectare) footprint of Lots 4, 64, 93F, 95, 96, 97/97C and 100, as delineated by AREVA and UniStar Nuclear.

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) was project manager for GAI's study. Barbara A. Munford, M.A. (Lead Archaeologist) served as project Principal Investigator and author of this management summary. Terry J. Newell (Archaeologist) supervised the archaeological fieldwork. Colleen Dugan (Archaeologist) performed historic artifact analysis. Jonathan Farrell prepared figures for this document.

From AREVA, Lannis Selz was project manager and Peter Gluckler was the technical manager for the project.

As during the initial Phase Ib survey, Chuck Thompson and Lyndsay Stutzman (from Kleinfelder, on behalf of UniStar Nuclear) served as on-site field coordinators for supplemental Phase Ib fieldwork and facilitated the field crew's daily access within the project area.

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 recommended eligible for NRHP listing.

Based on the results of Phase Ia geomorphological and archaeological field reconnaissance, along with background research, GAI 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. Archaeological sites in upland settings were anticipated to be near surface in nature. Low terrace/floodplains adjacent to the Susquehanna River were concluded to have a potential for both near surface and deeply buried sites.

GAI presented the results and recommendations of these Phase Ia surveys in two reports (GAI 2007; Munford and Tuk 2008). In a June 5, 2008, review of these studies, 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.

A Phase Ib archaeological survey was performed by GAI between May 19 and July 3, 2008. The 630-acre (255-hectare) project area comprised the West Alternative, Area 6, Area 7, Area 8, the Confers Lane Parcel and the proposed Switchyard 2 Transmission Line Corridor. Systematic Phase Ib archaeological survey investigated approximately 350 acres (142 hectares) of moderate to high archaeological potential within the project area. Fieldwork included pedestrian survey, the excavation of 3,789 shovel test pits (STPs), and a program of deep testing in one low terrace/floodplain locality. This work resulted in the identification of 11 archaeological sites (Sites 1-11) and 25 Isolated Finds. Supplemental architectural and historical survey collected additional information and provided completed PHRS forms for 22 of the 52 resources recorded during the initial survey (Munford and Tuk 2008).

GAI provided preliminary Phase Ib results and recommendations in a Phase Ib management summary (Munford et al. 2008) which has been submitted to PHMC-BHP for review. Seven of the 11 identified sites (Sites 2, 3, 4, 5, 7, 9 and 10) were recommended as potentially eligible for listing in the NRHP. Avoidance or Phase II investigations were recommended for these sites.

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 previously-submitted Phase Ib Management Summary (Munford et al. 2008) and Phase Ia reports (GAI 2007, Munford and Tuk 2008) provide details regarding the overall project setting, while the document presents only a brief review.

The 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). Route 11, which follows the curve of the river, crosses through the eastern and southern portions of the project area. The initial 630-acre (255-hectare) project area encompassed upland settings west, south and east of the existing SSES facility, as well as more limited low terrace/floodplains along the west bank of the Susquehanna River. Beach Grove Road and North Market Street roughly mark the northern and western edges of the initial project area.

The Supplemental Phase Ib project area lies in broad, gently sloping upland settings south and northwest of the previously-surveyed project localities. These areas represent the highest glacial outwash terraces of the Susquehanna River and are Late Illinoian to Wisconsin in age (Bush 1981). Wetlands that have developed on these terraces also formed in glacial outwash. 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.

Current land use within the Supplemental Phase Ib project area consists largely of previously-cultivated fields, along with areas of woodlands, wetlands and disturbances (e.g., quarries, topsoil removal, and residential development). At the time of Phase Ib fieldwork, the majority of fields were in corn, which was densely planted and had reached heights of 2.4 to 3.0 meters (8 to 10 feet).

Background Research Review

Based on a review of Phase Ia background research and the results of GAI's architectural survey of the initial BBNPP project area, the Supplemental Phase Ia APE contains seven previously-recorded architectural and historical resources and no previously-recorded archaeological sites (Figure 2). As presented in Table 2, the previously-recorded architectural and historical resources include three houses (GAI-14, GAI-15 and GAI-24), one farmstead (GAI-05), two bridges (GAI-06 and GAI-52) and one roadway (GAI-12). Six of these seven resources were documented by GAI's architectural survey and one bridge (GAI-52/135820) had been recorded previously. Descriptions of these resources are provided in GAI's Phase Ia Technical Report (Munford and Tuk 2008). GAI recommended that two of these resources, GAI-06 (Stone Arch Bridge) and GAI-12 (Susquehanna and Tioga Turnpike), are eligible for listing in the NRHP; the other five resources are recommended as not eligible. In their June 5, 2008 review letter, the PHMC-BHP requested completion of Pennsylvania Historic Resource Survey (PHRS) forms for the resources recommended NRHP eligible as well as for 12 others, including GAI-05 and GAI-14. Accordingly, PHRS forms for GAI-05, GAI-06, GAI-12 and GAI-14 are included as Appendix A in the Phase Ib Management Summary (Munford et al. 2008). GAI has recommended preparation of a Criteria of Effects Evaluation Report once concurrence on eligibility recommendations for identified architectural and historical resources is received from the PHMC-BHP (Munford et al. 2008:78).

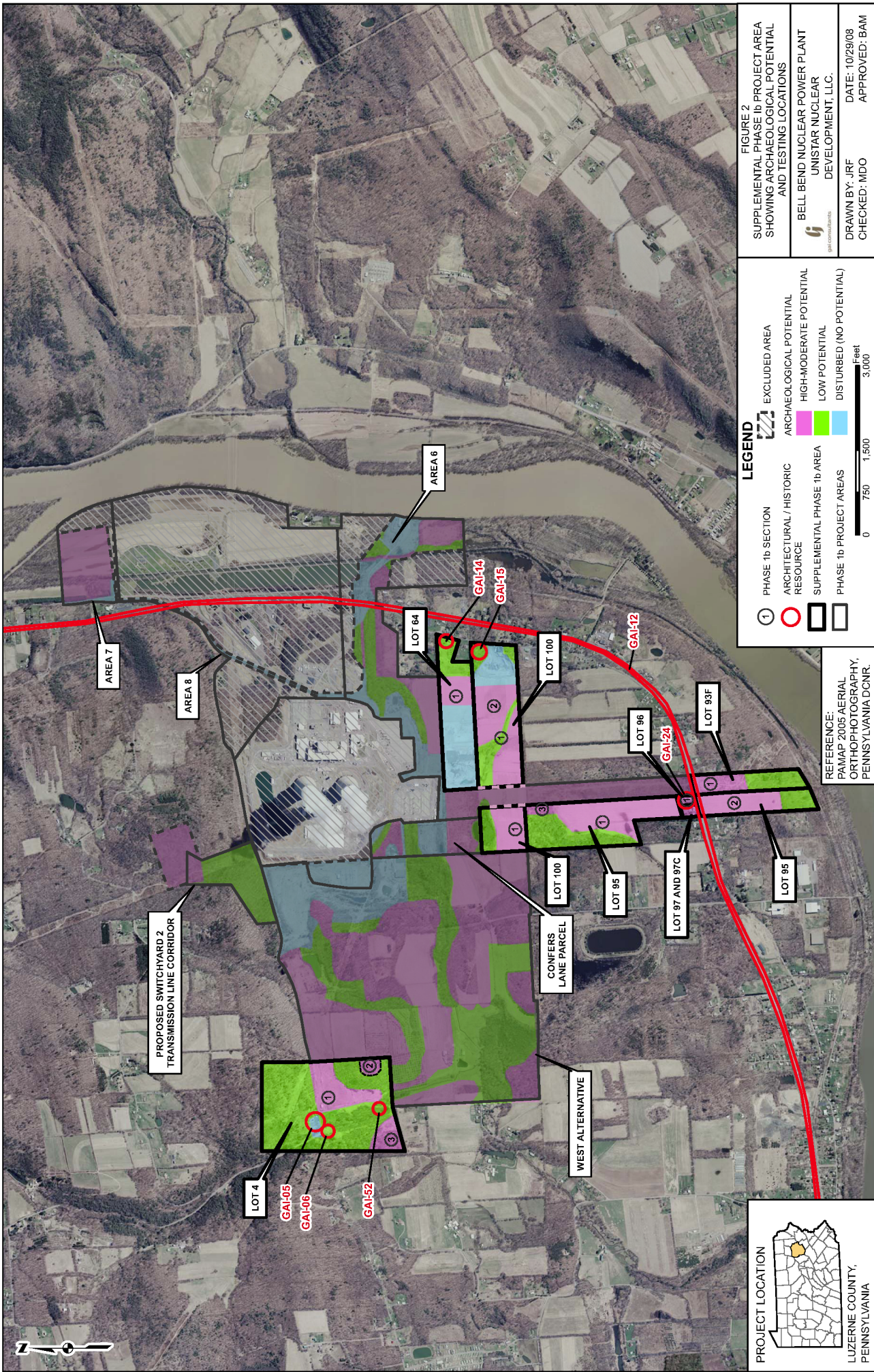


FIGURE 2
SUPPLEMENTAL PHASE 1b PROJECT AREA
SHOWING ARCHAEOLOGICAL POTENTIAL
AND TESTING LOCATIONS

BELL BEND NUCLEAR POWER PLANT
 UNISTAR NUCLEAR
 DEVELOPMENT, LLC.

DRAWN BY: JRF DATE: 10/29/08
 CHECKED: MDO APPROVED: BAM

LEGEND

- ① PHASE 1b SECTION
- ARCHITECTURAL / HISTORIC RESOURCE
- ▭ SUPPLEMENTAL PHASE 1b AREA
- ▭ PHASE 1b PROJECT AREAS
- ▨ EXCLUDED AREA
- ▭ ARCHAEOLOGICAL POTENTIAL
- ▭ HIGH-MODERATE POTENTIAL
- ▭ LOW POTENTIAL
- ▭ DISTURBED (NO POTENTIAL)

0 750 1,500 3,000 Feet

REFERENCE:
 PAWAP 2005 AERIAL
 ORTHOPHOTOGRAPHY,
 PENNSYLVANIA DCMR.

PROJECT LOCATION

LUZERNE COUNTY,
 PENNSYLVANIA

Table 2. Previously Recorded Architectural Resources within Project APE

Resource Number	Name	Address	Resource Type	Date	NRHP Recommendation	Location within APE
GAI-05	Hummel Farmstead	371 Beach Grove Rd, Salem Twp.	Farmstead	c1890	Not Eligible	Lot 4
GAI-06	Stone Arch Bridge	Beach Grove Rd. at Stone Church Rd., Salem Twp.	Bridge	c1935	Eligible, Criterion C	Lot 4
GAI-12	Susquehanna and Tioga Turnpike	US Rt. 11, Salem Twp.	Highway	1807-1810	Eligible, Criterion A	Lot 93F Lot 95
GAI-14	House	49 Bell Bend Rd., Salem Twp.	House	c1875	Not Eligible	Lot 64
GAI-15	House	65 Bell Bend Rd., Salem Twp.	House	c1880	Not Eligible	Lot 100
GAI-24	House	1069 Salem Blvd., Salem Twp.	House	c1925	Not Eligible	Lot 96
GAI-52 (135820)	Bridge	N. Market St., Salem Twp.	Bridge	1937	Not Eligible	Lot 4

As indicated in Table 2, Lot 4 includes three of the seven previously-recorded architectural and historical resources. Lots 64, 93F, 95, 96 and 100 each contain a single resource.

Archaeological Potential

GAI evaluated archaeological potential within the Supplemental Phase Ib APE based on a review of project mapping, the results of previous background research, and observations and evaluations of adjacent parcels during Phase Ia and Phase Ib investigations of the initial 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 a Phase Ib archaeological survey 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 testing during Phase Ib investigations. Disturbed localities were determined to have no archaeological potential and were excluded from further investigation. Due to the upland setting of the project APE, archaeological sites were anticipated to be near-surface in nature. The project area has no potential for deeply buried sites.

GAI's August 6, 2008, scope of work was based on project mapping (BBNPP, Wetland Impact Plan, Current Design, Sargent & Lundy, 6/26/08) provided by Peter Gluckler (AREVA) on July 1, 2008 (AREVA Document 38-9079793-002, AREVA Document 38-9080315-001, and AREVA Document 38-9084011-001) and on instructions from Peter Vlad (UniStar Nuclear) (July 16, 2008, email). The scope estimated that the Supplemental Phase Ib APE comprised 235 acres (95 hectares) consisting of approximately 197 acres (80 hectares) of moderate to high archaeological potential, 30 acres (12 hectares) of low potential, and 8 acres (3 hectares) of disturbance/no potential. Estimates of both project size and archaeological potential were revised during the course of Phase Ib fieldwork. As directed by representatives of AREVA and UniStar Nuclear [Chuck Thompson (Kleinfelder), August 18, 2008, personal communication, and Peter Gluckler (AREVA), September 2, 2008, email—AREVA Document 38-9079793-002, AREVA Document 38-9080315-001, and AREVA Document 38-9084011-001], the project APE was expanded to include Lot 93F and the

southern portion of Lot 95. Assessments of archaeological sensitivity were refined based on detailed, on-the-ground field observations (i.e., recent quarrying and topsoil removal) as well as the results of a wetlands survey conducted by Normandeau Associates (AREVA Document 38-9092360-000), which delineated areas of wetlands (characterized by low archaeological potential) within the supplemental project APE (see Figure 2).

III. Supplemental Phase Ib Archaeological Survey

Objectives

The goals of GAI's Supplemental Phase Ib archaeological 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 Ib archaeological fieldwork was conducted primarily between August 5 and September 11, 2008, with a return field visit on November 13, 2008 to survey one initial stay-off property (Lot 97/97C). As noted above, GAI's Supplemental Phase Ib Scope of Work (August 6, 2008) estimated that approximately 197 acres (80 hectares) of a 235-acre (95-hectare) supplemental project APE possessed a moderate to high archaeological potential and would require systematic Phase Ib survey. Based on an increase in project size and refinements in assessments of archaeological sensitivity, GAI's Supplemental Phase Ib survey investigated 115 acres (46.5 hectares) of moderate to high archaeological potential within a 262.6-acre (106.3-hectare) project APE. The identification of additional, low potential wetland localities (i.e., in Lots 4, 95 and 100) and surface disturbances (i.e., in Lots 64 and 100) within the project APE reduced the number of acres subject to systematic subsurface Phase Ib survey. Figure 2 presents the final assessments of archaeological sensitivity within the project APE.

The Supplemental Phase Ib project area consisted of seven lots defined by AREVA/UniStar Nuclear: Lots 4, 64, 93F, 95, 96, 97/97C, and 100 (see Figure 2). These lots varied from large cultivated fields (e.g., Lot 100) to small residential parcels (e.g., Lots 96 and 97/97C). The majority of these lots are situated south of Area 6 and the existing SSES facility, while Lot 4 lies in the northwest corner of the overall BBNPP project area, adjacent to the West Alternative. GAI conducted Phase Ib testing within portions of all seven lots. Test Sections were numbered sequentially within each lot (i.e., Lot 4: Sections 1-3; Lot 64: Section 1; Lot 93F: Section 1; Lot 95: Sections 1-3; Lot 96: Section 1; and Lot 100: Section 1-2) (see Figure 2).

Owing to poor ground surface visibility within localities of moderate to high archaeological potential, the Phase Ib survey consisted of systematic shovel testing. Because previously cultivated fields (whether fallow or planted in corn) could not be plowed and disked, pedestrian ground survey of these areas was not possible.

At the time of fieldwork, the majority of cultivated fields in the project APE were planted in corn, which reached heights of 2.4 to 3.0 meters (8 to 10 feet). Due to the unanticipated density of these cornfields, it was necessary to first clear transects through the cornfields to permit access for subsequent shovel testing (Photograph 3). Beginning with Lot 100, GAI archaeologists initially attempted to hand-clear transects using machetes. When this process proved too time-consuming, and potentially dangerous, a bobcat with a brush hog attachment was employed to clear these transects mechanically (Photograph 4). Cleared transects were spaced at 15-meter (50-foot) intervals; they averaged 1.5 meters (5 feet) in width and extended for the length of the field. GAI archaeologists used a compass to help the machine operator maintain each transect's orientation during mechanical clearing. Following completion of clearing activities, shovel testing was conducted within these transects.



Photograph 3. Hand-Clearing of Densely-Planted Corn in Lot 100, Facing North



Photograph 4. Machine-Clearing of Transect through Cornfield in Lot 100, Facing North

Systematic shovel test pits (STPs) were excavated at 15-meter (50 foot) intervals within transects spaced 15 meters (50 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 (15-foot) intervals around the initial positive findspot to further investigate the locality. GAI excavated 1,919 STPs during supplemental Phase I fieldwork.

STPs measured 50 cm (20 in) in diameter and were hand-excavated in natural strata to at least 10 cm (4 in) into the subsoil and 10 cm (4 in) below the deepest artifact recovery. 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 of artifacts. STP locations were recorded on project maps and were backfilled upon completion.

Identified archaeological resources were to be recorded on standardized forms, plotted on maps, documented with photographs, and their locations recorded using mapping grade GPS equipment.

Results of Fieldwork

GAI’s Phase Ib survey of the supplemental BBNPP project area involved the excavation of 1,937 STPs. Four of these STPs were positive, producing four historic artifacts (3 fragments of glass and 1 ceramic sherd). These artifacts represent field scatters or roadway scatters. No archaeological sites or isolated finds were identified. Table 3 presents a summary of Phase Ib survey results by testing location. A brief description of testing within each lot is provided below.

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

Testing Location	# STPs	# Pos. STPs	Sites	Isolated Finds
Lot 4				
Section 1	81	0	--	--
Section 2	12	0	--	--
Section 3	157	0	--	--
Subtotal	250			
Lot 64—Section 1	114	0	--	--
Lot 93F—Section 1	79	0	--	--
Lot 95				
Section 1	424	0	--	--
Section 2	226	2	--	--
Section 3	18	0	--	--
Subtotal	668			
Lot 96—Section 1	19	0	--	--
Lot 97—Section 1	18	0	--	--
Lot 100				
Section 1	492	2	--	--
Section 2	297	0	--	--
Subtotal	789			
Total	1,937 STPs	4	0 Sites	0 IFs

Note: Lot 100—Section 1 includes initial stay-off portion of Area 6

Lot 4

Lot 4 is located at the northwest corner of the project’s West Alternative, at the intersection of Beach Grove Road and North Market Street (see Figure 2). It encompasses steep wooded hillsides to the north of Beach Grove Road and woodlands, open fallow fields, and wetlands to the south of Beach Grove Road (Photograph 5). Walker Run bisects the western half of this lot. As indicated in Table 2, Lot 4 contains three architectural resources (GAI-05, GAI-06 and GAI-52) recorded during GAI’s previous architectural survey (Munford and Tuk 2008). GAI-05 (the Hummel Farmstead) is located north of the roadway intersection (Photograph 6). The farmstead’s yard has been disturbed by landscaping and was not subject to shovel testing. GAI-06 (stone arch bridge) (Photograph 7) and GAI-2 (concrete bridge) both span Walker Run in this area. Of these three resources, only GAI-06 is recommended as eligible for listing in the NRHP (see Table 2).



Photograph 5. Lot 4, Section 1, Showing Overgrown Fallow Field, Facing Northeast



Photograph 6. Lot 4, View of Hummel Farmstead (GAI-05) from North Market Street, Facing North



Photograph 7. Lot 4, Stone Arch Bridge (GAI-06), Facing Northeast

GAI conducted Phase Ib survey in three localities (Sections 1-3) within Lot 4 (see Figure 2). Section 1 consists of an overgrown fallow field located southeast of the intersection of Beach Grove Rd and North Market Street (see Photograph 5). A garage sits adjacent to the roadway intersection. Section 2 represents a small wooded hilltop in the southeast corner of

Lot 4. Section 3, situated in the southwest corner of Lot 4, includes an overgrown fallow field (to the east) and woodland (to the west).

GAI excavated 250 STPs in Lot 4. This work produced no artifacts and identified no archaeological sites.

Lot 64

Lot 64 is located in an upland setting along the southern edge of Area 6, east of the transmission corridor (see Figure 2). Supplemental Phase Ib shovel testing was conducted in a cornfield (Section 1) in the eastern half of this lot (Photograph 8). Disturbances in the western portion of this lot include an active rock quarry and an area of recent topsoil removal, which, according to the landowner, occurred within the past year (personal communication, Mr. Dotzul, August 2008) (Photograph 9). The eastern end of the lot consists of wetlands and steep slopes, as well as an area of residential disturbance (along Bell Bend Road). GAI-14, a

house recorded during GAI's previous architectural survey and recommended as not eligible to the NRHP, lies within the eastern end of Lot 64 (see Table 2).



Photograph 8. Lot 64 Showing Disturbed Area of Topsoil Removal in Foreground and Section 1 Cornfield in Distance, Facing East



Photograph 9. Lot 64 Showing Disturbed Area of Recent Topsoil Removal and Rock Quarry in Distance, Facing West

GAI conducted Phase Ib survey in one large cornfield (Section 1) located in the central portion of Lot 64 (see Figure 2). The 114 STPs excavated in this area produced no artifacts and resulted in the identification of no archaeological sites.

Lot 93F

Lot 93F, added to the project area during the course of fieldwork, represents a portion of an existing transmission corridor extending southward from U.S. Route 11 to the railroad tracks (see Figure 2). The northern half of this parcel consists of a fallow field vegetated in overgrown grass and brush (Photograph 10); the southern half is a steeply sloping woodland. The installation of transmission towers, and the construction and use of gravel access roads and several ATV tracks have resulted in limited localized disturbances within this parcel. GAI-12 (the Susquehanna and Tioga Turnpike/U.S. Route 11), bounding the northern edge of Lot 93F, was recorded during GAI's architectural survey. This roadway was recommended as eligible for listing in the NRHP (Table 2).



Supplemental Phase Ib shovel testing was conducted in the relatively northern portion of this lot (Section 1) (see Figure 2). GAI excavated 79 STPs in Lot 93F, yielding no artifacts.

Photograph 10. Lot 93F, Section 1, Showing Overgrown Fallow Field within Existing Transmission Corridor, Facing South

Lot 95

Lot 95 borders the western edge of the transmission corridor (Area 6) and extends both north and south of Route 11 (see Figure 2). GAI conducted Phase Ib shovel testing in three areas of moderate to high archaeological potential (Sections 1-3) within this upland parcel (see Figure 2). The portion of Lot 95 north of U.S. Route 11 consists largely of cornfields (Section 1) (Photograph 11), with a wooded wetland along its northern and western edges. A small, relatively well-drained, wooded area (Section 3) lies in the northeast corner. South of the roadway, this parcel encompasses a cornfield and a fallow field (Section 2) (Photograph 12). South of these cultivated fields, a steep wooded slope descends to the railroad track.



Disturbances within this lot consist of cultivation and field access roads. GAI-12 (the Susquehanna and Tioga Turnpike/U.S. Route 11), recommended as a NRHP-eligible resource, marks the northern edge of Section 2 (see Table 2, Photograph 13).

Photograph 11. Lot 95, Section 1, Showing Shovel Testing in Cleared Transect through Cornfield, Woodland in Distance, Facing West



Photograph 12. Lot 95, Section 2, Showing Shovel Testing in Fallow Field, Facing South



Photograph 13. Lot 95 Showing GAI-12 (Susquehanna and Tioga Turnpike/U.S. Route 11) at Northern Edge of Section 2 Cornfield, Facing South

GAI excavated 668 shovel tests in Lot 95. Two positive STPs in Section 2 (cornfield south of Route 11) each produced a single artifact (1 fragment of glass and 1 historic ceramic). Radial shovel testing in these localities yielded no additional artifacts. These artifacts are concluded to represent modern/historic field or roadway scatter. No archaeological sites were identified in Lot 95.

Lot 96

Lot 96 is a residential parcel, situated along the north edge of Route 11, immediately west of the existing transmission corridor (Area 6) (see Figure 2, Photograph 14). This property contains GAI-24, an architectural resource consisting of three abandoned structures (a circa-1925 dwelling, a garage and a garage/shed) and recommended as not eligible for listing in the NRHP (see Table 2). A lawn and a border of pine trees surround the structures. Disturbances within Lot 96 include residential construction, landscaping, gravel driveways, and the installation and removal of a pool (behind the house). GAI excavated 19 STPs in this area. No artifacts were recovered and no archaeological sites were identified in Lot 96.



Photograph 14. Lot 96, Section 1, Showing GAI-24 (Abandoned Dwelling and Garage), Facing North

Lot 97/97C

Lot 97/97C consists of adjoining residential parcels situated north of Route 11, immediately west of Lot 96 (see Figure 2). A dwelling, less than 50 years of age, is located on this lot (Photograph 15). Due to lack of property access, Lot 97/97C was not investigated during the August through September fieldwork. Following notification that property access was granted (November 11, 2008, email from Rick Williamson, AREVA), GAI returned to the project area on November 13, 2008, to survey this parcel. Eighteen STPs were excavated in Lot 97/97C. Shovel testing produced no artifacts and revealed no archaeological sites in this lot.



Photograph 15. Lot 97/97C, Showing Residence, Facing East

Lot 100

Lot 100 occupies a broad upland flat south of Lot 64 and the Confers Lane Parcel, and extending eastward from the West Alternative to Bell Bend Road (see Figure 2). An existing transmission line corridor (Area 6) bisects its western half. This parcel includes extensive cornfields (Photograph 16). Wetlands are located in its northwest corner and along a small drainage crossing its central portion. The eastern end of Lot 100 encompasses an active quarry (Photograph 17), steep wooded wetlands, and residential properties. Disturbances

within this lot include cultivation, quarrying, installation of transmission towers, and limited residential-related construction. GAI-15, a residential property recorded during GAI's architectural survey, is located at the eastern end of Lot 100 along Bell Bend Road; this property was recommended not eligible for listing in the NRHP (see Table 2).



Photograph 16. Lot 100, Section 1, Shovel Test Transect in Cornfield, Facing North



Photograph 17. Lot 100, View of Quarry at Eastern Edge of Section 2, Facing Southwest

GAI identified and surveyed two areas of moderate to high archaeological potential (Sections 1-2) within Lot 100 (see Figure 2). Section 1 represents the cornfield covering the western two-thirds of the parcel and spanning the transmission corridor; Section 2 consists of the cornfield in the eastern one-third of the lot. The portion of the cornfield located within the existing transmission corridor was defined as an Area 6 stay-off property during the initial Phase Ib survey, due to lack of property access. Access was obtained following the completion of initial fieldwork and, therefore, GAI conducted survey of this area during supplemental Phase Ib investigations of Lot 100, Section 1.

GAI excavated 789 STPs in Lot 100. Two positive STPs were found in Section 1, each yielding a single fragment of glass. Radial shovel testing at these two dispersed localities produced no additional artifacts. These artifacts are concluded to represent modern/historic field scatter; they do not constitute archaeological sites. No archaeological sites were identified in Lot 100.

IV. Summary and Recommendations

Project Summary

GAI conducted Supplemental Phase Ib archaeological investigations at the Bell Bend Nuclear Power Plant (BBNPP), Luzerne County, Pennsylvania, for UniStar Nuclear, under a contract to AREVA NP, Inc. Supplemental Phase Ib fieldwork, performed between August 5 and November 13, 2008, investigated approximately 115 acres (46.5 hectares) of moderate to high archaeological potential within the 262.6-acre (106.3-hectare) project area. Phase Ib fieldwork consisted of the excavation of 1,937 shovel test pits.

The Supplemental Phase Ib survey identified no archaeological sites or isolated finds within the project area. Shovel testing produced just four historic artifacts, all representing field or roadway scatters. Based on these preliminary results, GAI recommends no further archaeological investigations of the supplemental BBNPP project area.

The Supplemental Phase Ib project area includes seven architectural and historical resources identified during GAI's previous architectural survey, two of which have been recommended as eligible for listing in the NRHP (Munford and Tuk 2008). In the previous Phase Ib Management Summary (Munford et al. 2008), GAI recommended preparation of a Criteria of Effects Evaluation Report for NRHP-eligible architectural and historical resources in the overall project viewshed once concurrence on eligibility recommendations is received from the PHMC-BHP. NRHP-eligible architectural resources located within the current supplemental project area will be addressed by this report, which will include a full assessment of the direct physical impacts to resources from the proposed project, as well as secondary effects.

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