

Street (Figure 2). The site is bounded, in general, by North Market Street to the east and a fallow field to the west. To its south, a wooded wetland, a pond, and the Michaels Farm (including a house, two garages, and two sheds) separate the cultivated field from North Market Street. Note that the circa 1880 Michaels Farm (155063/GAI-25) was documented 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 (March 17, 2010 review letter). Ground surface elevation within the site area rises slightly to the north, increasing from 200 meters (655 feet) above mean sea level (amsl) at the south edge to 203 meters (666 feet) amsl along the north edge. A bedrock outcrop of calcareous clay shale (claystone), measuring approximately 10x15 meters (33x49 feet), occurs at ground level in the north central portion of the site. The surface of the cultivated field is characterized by a high percentage of cobbles, gravels, and rock fragments.

GAI's Phase II fieldwork included controlled surface collection, judgmental and close-interval shovel testing, test unit excavation, plowzone stripping, and feature sampling. This work yielded 49 prehistoric artifacts and 143 historic artifacts, and identified 212 possible cultural features (211 features located within plowzone stripped trenches, and one feature exposed in a test unit). As requested by PHMC-BHP, GAI investigated a 25 percent sample of the 211 possible cultural features identified during plowzone stripping, with a total of 55 features tested during Phase II fieldwork. Based on preliminary Phase II results, these 55 features include one historic feature (Feature 77), five thermal features of indeterminate origin (possible prehistoric hearth features, historic burn pits, or natural burn areas) (Features 150, 153, 154, 161, and 171), two possible prehistoric or historic postmolds (Features 37 and 38), and 47 non-cultural soil anomalies (primarily root/rodent disturbances). Further evaluations of feature age and origin will be conducted based on the results of forthcoming archaeobotanical analysis and radiocarbon analysis.

Regulatory Guidelines

GAI's Phase II National Register Evaluation 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).

Previous Archaeological Investigations

Site 36LU301 was identified by GAI in 2010 during the Second Supplemental Phase Ib investigation of the BBNPP project area (Munford 2010). The site consisted of a low-density, dispersed prehistoric lithic scatter measuring 80x200 meters (262x656 feet) (Figure 3). A sparse scatter of historic artifacts was also recovered within the site boundary.

Phase Ib investigations in the site vicinity included a pedestrian ground survey and judgmental shovel testing within the cultivated field, as well as systematic shovel testing of the farmyard south of the field. Pedestrian ground survey of the field was conducted along transects spaced at 5-meter (16-foot) intervals. Judgmental shovel test pits (STPs) were excavated within the field to document stratigraphy and the depth of cultural deposits; four of these judgmental shovel tests occurred within the site boundary. Shovel testing was conducted at 15-meter (49-foot) intervals across the lawn of the farmyard, with radial STPs excavated at 5-meter (16-foot) intervals around initial findspots.

Phase Ib investigations yielded a dispersed low-density surface scatter of 14 prehistoric lithics, as well as 21 historic specimens (see Figure 3). Shovel testing revealed an Ap-B soil horizon sequence throughout the site. [The Ap horizon represents a dark, organic-rich surface horizon that has been disturbed by cultivation. The underlying B horizon is a subsoil horizon that is typically lighter in color (e.g., yellowish brown) and is characterized by a concentration of clays and iron. The Ap/B horizon interface is distinct and plow scars are often visible at the contact.] All prehistoric lithics were found in plow disturbed contexts, with 13 artifacts recovered from the surface of the cultivated field and one from the Ap horizon in a shovel test.

The sample of 14 prehistoric lithics included 5 bifaces, 7 debitage and 2 cobble tools (hammerstones/pecking stones). Shriver/Helderberg chert was used to manufacture six of the chipped stone artifacts, including three of the five bifaces, with the remainder made from argillite and Onondaga chert. Cobble tools were made exclusively from sandstone. The Phase Ib tool assemblage included one diagnostic specimen—a possible Early Archaic MacCorkle-like projectile point. Also recovered were one untyped projectile point fragment and three nondiagnostic biface fragments.

The scatter of 21 historic artifacts consisted predominantly of kitchen-related specimens, with a low frequency of architectural debris and activities-related artifacts. These artifacts were concluded to represent a field scatter of nineteenth and twentieth century debris associated with cultivation of this property; they were not considered to constitute an historic period archaeological site.

Based on the results of Phase Ib investigations, GAI concluded that Site 36LU301 had a potential to yield diagnostic artifacts and, possibly, cultural features that could contribute important information on the prehistoric use of the area. Accordingly, GAI recommended that the site was potentially eligible for listing in the NRHP under Criterion D. PHMC-BHP reviewed these results as presented in the Phase Ib Addendum Report (Munford 2010), and in a May 20, 2011 letter (Appendix A) they concurred with the results and recommended site avoidance or Phase II National Register Evaluation to determine the site's eligibility.



II. Field Methods

Prior to the start of Phase II investigations, the previously cultivated field within the site area was plowed and disked to provide adequate visibility for surface collection. GAI surveyors established a grid across the site using a total station [electric theodolite (transit) with integrated electronic distance meter]. The survey grid covered an area measuring 140x220 meters (459x722 feet) (see Figure 2). Stakes were placed at 20-meter (65.6-foot) intervals along north/south and east/west baselines at the edges of the site and throughout the site area. Subsequent excavations were designated by their coordinates within this grid system.

Phase II fieldwork included controlled surface collection (CSC) followed by judgmental and close-interval shovel testing, test unit excavation, plowzone stripping (mechanical trenches), and feature sampling. Due to the need for mechanical plowzone stripping, the Luzerne Conservation District required preparation and implementation of an Erosion and Sedimentation Control (E&S) Plan for the site. In accordance with this plan, GAI installed silt fencing along the southern and western edges of the cultivated field before the start of plowzone stripping.

Surface Collection

Phase II fieldwork began with a controlled surface collection (CSC) of the plowed and disked field within 5x5-meter (16.4x16.4 foot) surface collection blocks (see Figure 2). GAI archaeologists examined the ground surface within each block and observed artifacts were collected, bagged, and provenienced according to the southwest corner grid coordinates of the collection block. A total of 1,009 surface collection blocks were examined during the CSC.

Shovel Testing

Based, in part, on the results of the surface collection, 64 judgmental shovel test pits (STPs) were excavated in select localities within the cultivated field to further investigate areas of surface artifact recovery, document soil stratigraphy, and assess the presence of subplowzone cultural deposits (see Figure 2). Radial shovel tests were excavated at 5-meter (16-foot) intervals around initial positive findspots in an area outside of the recent plowing and disking at the northern edge of the site, where surface visibility was poor.

GAI conducted close-interval (5-meter/16-foot) shovel testing in a small portion of the farmyard south of the field from which prehistoric artifacts were recovered during Phase Ib shovel testing. Twenty STPs were excavated in this lawn area (also used as a field access road) bounded by North Market Street to the south, the field to the north and west, and a line of evergreen trees to the east (see Figure 2).

Shovel tests measured 50-cm (1.6-feet) in diameter and were hand-excavated by natural stratigraphy to a depth of approximately 40 to 50 cm (1.3 to 1.6 feet) below ground surface. STPs were backfilled upon completion.

Test Unit Excavation

GAI excavated ten 1x1-meter (3.3x3.3-foot) test units (TUs 1-10) in select areas of the site to further sample areas of relatively higher artifact density identified during surface collection and shovel testing, and to evaluate the vertical extent of cultural deposits. Test units were hand-excavated in 10-cm (0.3-foot) levels within natural strata, to a depth of at least 10 cm (0.3 feet) into the subsoil and 10 cm (0.3 feet) below the deepest recovered artifact. Nine of the test units (TUs 1-8 and 10) were excavated in the northwest quadrant of the site and one (TU 9) was placed in the southwest quadrant. Test units were backfilled upon completion.

Plowzone Stripping

Following the completion of hand excavations, GAI conducted mechanical stripping of the plowzone to investigate the presence of cultural features at the top of the subsoil. Seven trenches (Trenches 1-7) were excavated using a rubber-tired backhoe or a trackhoe, both with flat-bladed buckets. Due to the near absence of recovered artifacts from the site's eastern portion, these parallel, north/south-oriented trenches were all located in the western half of the site. The trenches measured 2-meters (6.6-feet) wide and varied in length from 95 to 130 meters (312 to 427 feet). Within each trench, the backhoe removed the plowzone, in increments, to the top of the B horizon. Excavated soils were deposited in piles along one side of each trench. GAI archaeologists then hand shovel-scraped the floor of the trench to expose soil anomalies or artifact concentrations representing possible cultural features. Each trench was mapped and photographed. Identified features were documented and sampled (as described below).

Trenches were mechanically backfilled upon completion of investigations. GAI excavated 1,600 square meters (17,222 square feet) during plowzone stripping, representing approximately 5.4 percent of the total site.

Feature Sampling

GAI's initial Phase II Scope of Work assumed investigation of up to five prehistoric features. Following the identification of large numbers of possible cultural features during initial plowzone stripping, GAI notified Brad Wise (PPL) of these unanticipated discoveries. At the request of PPL, GAI contacted Steve McDougal (PHMC-BHP) to discuss an appropriate approach for investigating these features. In a July 12, 2011 phone conference, Mr. McDougal recommended investigation of a 25 percent sample of various feature types exposed during plowzone stripping. Based on PHMC-BHP's recommendations, and subsequent to PPL's approval of supplemental Phase II work, feature sampling was conducted at Site 36LU301.

GAI grouped the 211 possible cultural features into categories based on planview observations of feature size and morphology. Seven categories of features were defined: small circular/oval stains; medium circular/oval stains; large circular stains; large oval/elongate stains; oxidized stains; irregular stains; and large, likely historic/modern stains. [Clearly noncultural anomalies (e.g., obvious root disturbances) and recent agricultural-related anomalies (e.g., multiple, overlapping lines of small circular stains) were noted and were excluded from investigation.] GAI investigated a 25 percent sample of features in each category. During Phase II fieldwork, GAI investigated 54 possible cultural features exposed during plowzone stripping, plus one additional feature (Feature 1) identified during test unit excavation, for a total of 55 features.

All identified possible cultural features were troweled clean, plotted on project maps, photographed, and recorded on a Feature Log. Each sampled feature was bisected along its long axis and the first half of the feature was removed in 10-cm (0.3-foot) arbitrary levels within natural stratigraphy, if present. The feature fill was screened through 0.6-cm (0.25-in) wire mesh and recovered artifacts were bagged according to their provenience. The feature profile was recorded with a measured drawing and photographs. If the results of the bisection confirmed that the feature was noncultural, investigations were terminated at this stage. If the feature was concluded to be potentially cultural the second half of the feature was excavated as above and flotation samples were collected from the feature fill. The base of the excavated feature was photographed. Sampled features were documented with standardized GAI Feature forms.

III. Field Results

GAI's Phase II investigations resulted in the recovery of 49 prehistoric artifacts and 143 historic specimens from Site 36LU301. Tables 1 and 2 present the stratigraphic distribution of these artifacts by the various Phase II testing methods.

Table 1. Site 36LU301 Phase II: Stratigraphic Distribution of Prehistoric Artifacts by Testing Method

Soil Horizon	Surface Collection	STP	TU	Plowzone Stripping	Feature	Total	%
Surface	20	--	--	--	--	20	40.8%
Ap	--	7	14	--	--	21	42.9%
B	--	--	--	1	--	1	2.0%
Feature Fill	--	--	--	--	7	7	14.3%
Total	20	7	14	--	7	49	100.0%
%	40.8%	14.3%	28.6%	2.0%	14.3%	100.0%	

Table 2. Site 36LU301 Phase II: Stratigraphic Distribution of Historic Artifacts by Testing Method

Soil Horizon	Surface Collection	STP	TU	Plowzone Stripping	Feature	Total	%
Surface	17	--	2	--	--	19	13.29%
Ap	--	28	1	--	--	29	20.28%
Feature Fill	--	--	--	--	93	93	65.03%
Disturbed	--	--	--	2	--	2	1.40%
Total	17	28	3	2	93	143	100.0%
%	11.89%	19.58%	2.10%	1.40%	65.03%	100.0%	

Surface Collection

Controlled surface collection (CSC) of 1,009 5x5-meter (16.4x16.4-foot) blocks across the cultivated field within the site area produced just 20 prehistoric lithic artifacts from 19 positive blocks and 17 historic/modern artifacts from 17 blocks (see Figure 2; see Tables 1 and 2; Photograph 3). The prehistoric artifacts included 2 projectile points, 11 debitage and 7 fire-cracked-rocks (FCR). The single diagnostic prehistoric artifact recovered consisted of an Early Woodland Cresap-like projectile point that was point provenienced (N575.3 E419.3) within Block N575 E415 near the site's western edge. One untyped projectile point fragment (possibly representing a stemmed specimen) was point provenienced (N575.45 E457.0) within Block N575 E455, in the west central portion of the site.

Prehistoric artifact density was extremely low, with 18 of the blocks producing just one artifact each and one positive block yielding two artifacts. Half ($n=10$) of the artifacts recovered during controlled surface collection, including both projectile points, were found in the northwestern quadrant of the site (north of the N570 gridline and west of the E490 gridline). This is also the only area of the site containing contiguous positive surface collection blocks. Seven artifacts were found in the southern portion of the site, while only two were recovered from its eastern portion.



Photograph 3. Site 36LU301: View of Controlled Surface Collection, Facing West

As noted previously, an outcrop of calcareous clay shale (claystone) was located within the northern portion of the site and a high percentage of this rock, as well as sandstone cobbles and gravels, occurs naturally within the site area. Over 200 additional specimens of claystone were initially collected during the surface collection. Subsequent to laboratory processing and analysis, these specimens were concluded to be likely noncultural materials and were eliminated from the prehistoric artifact assemblage (see Artifact Analysis section below). These specimens were collected primarily from the northwest quadrant of the site, in proximity to the rock outcrop, as well as from the southwest quadrant.

The 17 historic/modern specimens recovered during controlled surface collection consisted of kitchen-related glass and ceramics as well as architectural specimens (i.e., brick fragments and window glass). Approximately two thirds (65 percent) of these artifacts were recovered from the southwest portion of the site, seven artifacts were found in the site's eastern portion and one was found in the northwest portion.

Shovel Testing

GAI excavated 64 judgmental shovel tests (STPs J1-J64) in the cultivated field (see Figure 2, Photograph 4). Judgmental STPs were located in the vicinity of positive surface collection blocks primarily in the site's northwest and southwest quadrants. Three judgmental STPs were placed in the extremely low-density eastern portion of the site. A row of STPs was also

excavated immediately outside the western edge of the plowed and disced field in order to confirm the site's western boundary. Seventeen STPs were located just beyond the northern edge of the plowed and disced field to further investigate an initial findspot and to define the northern boundary of the site.



Photograph 4. Site 36LU301: Judgmental Shovel Testing in Cultivated Field, Facing Southwest

Twenty close-interval STPs were excavated in a small section of farmyard south of the field to further investigate an area of Phase Ib prehistoric artifact recovery. Shovel tests excavated at the western portion of this area exposed disturbed soils associated with a drainage ditch and use of the areas as a field access road. The remainder of STPs exposed an Ap-B soil horizon.

Shovel testing yielded seven prehistoric artifacts and 28 historic specimens, all from the plowzone. The seven prehistoric lithics were recovered from six positive STPs, including four (STP J26, J29, J32 and J41) in the northwest portion of the site and two in the farmyard (STP X9 and X10).

The 28 historic artifacts occurred in ten positive shovel tests. The majority (n=16) of these artifacts were found in the farmyard, and all but one of the remaining artifacts was recovered from the southern edge of the field. STP J43, located in the northwest corner of the site, yielded a single historic artifact.

Test Units

Ten 1x1-meter (3.3x3.3-foot) test units (TUs 1-10) were excavated within the site. Table 3 presents a summary of these units. Test unit excavation produced only 14 prehistoric lithic artifacts and three historic specimens. The test unit prehistoric assemblage consisted entirely of fire-cracked rock (FCR). These artifacts were found in TU 1 (n=10) and in TU 7 (n=4). Both of these test units were situated in the northwest quadrant of the site, approximately 7 meters (23 feet) apart (see Figure 2). The three historic artifacts were recovered from surface/plowzone contexts in TU 4 (1 whiteware sherd and 1 window glass) and TU 10 (1 redware sherd), also located in the site's northwest corner.

Table 3. Site 36LU301 Phase II: Test Unit Summary

TU	Location	Soil Stratigraphy (Depth=cm below ground surface)	Prehistoric Artifact Total	Historic Artifact Total	Comments
1	N 592 E 418	Ap=0-30 cm; B=30-40 cm	10	0	Few cobbles, No features, Plowscars at Ap/B interface
2	N 603 E 426	Ap=0-32 cm; B=32-42 cm	0	0	Cobbles, No features
3	N 612 E 445	Ap=0-29 cm; B=29-39 cm	0	0	Cobbles, No features
4	N 608 E 426	Ap=0-19 cm; B=19-29 cm	0	2	Cobbles, No features
5	N 585 E 416	Ap=0-34 cm; B=34-44 cm	0	0	Few Cobbles, No features
6	N 602 E 444	Ap=0-33 cm; B=33-43 cm	0	0	Feature 1(Non cultural), Few cobbles, Plowscars at Ap/B interface
7	N 598 E 423	Ap=0-24 cm; B=24-34 cm	4	0	Few cobbles, No features
8	N 610 E 443	Ap=0-30 cm; B=30-40 cm	0	0	Cobbles, No features
9	N 540 E 442	Ap=0-35 cm; B=35-45 cm	0	0	Few cobbles, No features, Plowscars at Ap/B interface
10	N 617 E 445	Ap=0-29 cm; B=29-39 cm	0	1	Cobbles, No features
TOTAL			14	3	