



**Pennsylvania Power & Light Company**

Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis  
Vice President-Engineering & Construction-Nuclear  
215 / 770-5381

NOV 09 1982

Mr. A. Schwencer, Chief  
Licensing Branch No. 2  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
NOMINATION OF HISTORIC PLACES  
ER 100450 FILE 841-22  
PLA-1390

Docket Nos. 50-387  
50-388

Dear Mr. Schwencer:

Pursuant to Section 4.2.4 of Appendix B of License No. NPF-14, the Susquehanna Steam Electric Station Environmental Protection Plan, please find enclosed executed copies of Nomination Forms for sites SES-3, SES-6, SES-8, and SES-11.

Very truly yours,

N. W. Curtis  
Vice President-Engineering & Construction-Nuclear

RRS/mks

cc: R. L. Perch - USNRC  
L. M. Bykoski - USNRC

C002

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PDR ADOCK 05000387  
P PDR

**United States Department of the Interior  
Heritage Conservation and Recreation Service**

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**National Register of Historic Places  
Inventory—Nomination Form**

received  
date entered

See instructions in *How to Complete National Register Forms*  
Type all entries—complete applicable sections

**1. Name**

historic SES-3 and 36Lu15

and/or common Riverlands Recreation Area, Susquehanna Steam Electric Station, Site SES-3

**2. Location**

street & number R.D. 1, U.S. Route 11, Salem Township not for publication

city, town Berwick  vicinity of congressional district

state Pennsylvania code 42 county Luzerne code 079

**3. Classification**

<b>Category</b>	<b>Ownership</b>	<b>Status</b>	<b>Present Use</b>
<input type="checkbox"/> district	<input type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input type="checkbox"/> agriculture
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational
<input checked="" type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial
		<input type="checkbox"/> no	<input type="checkbox"/> military
			<input type="checkbox"/> museum
			<input type="checkbox"/> park
			<input type="checkbox"/> private residence
			<input type="checkbox"/> religious
			<input type="checkbox"/> scientific
			<input type="checkbox"/> transportation
			<input type="checkbox"/> other:

**4. Owner<sup>(s)</sup> of Property**

name Pennsylvania Power and Light Co. Allegheny Electric Cooperative Inc.

street & number 2 N. 9th Street P.O. 1266

city, town Allentown, Pennsylvania 18101 vicinity of Harrisburg, state Pennsylvania 17108

**5. Location of Legal Description**

courthouse, registry of deeds, etc. County Clerk Luzerne County Courthouse

street & number North River Street

city, town Wilkes-Barre state Pennsylvania 18705

**6. Representation in Existing Surveys**

1) Archeological Investigations at the Susquehanna Steam Electric Station  
title 2) Pennsylvania State Museum Archeological Site Survey and Recording Program - File  
date 1) 1981; 2) 1967

Has this property been determined eligible?  yes  no  
 federal  state  county  local

depository for survey records William Penn Memorial Museum and Archives Building Box 1026

city, town Harrisburg state Pennsylvania

## 7. Description

Condition		Check one	Check one	
<input type="checkbox"/> excellent	<input checked="" type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site	
<input type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved	date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed			

Describe the present and original (if known) physical appearance

### Context

#### a) General

SES-3 is one of four prehistoric sites judged to be significant in a systematic archeological and geoarcheological survey of the floodplain tract of the Susquehanna River. The work was undertaken by an archeological team from Commonwealth Associates Inc., Jackson, Michigan, for Pennsylvania Power and Light Company. Figures 1 & 2 illustrate the location and setting of the study area in east-central Pennsylvania. Fieldwork was undertaken by a four-man team for a six-week period running from June to mid-July, 1980. The field phase was followed up by analysis and write-up.

Field methods involved both surface walkover and shovel testing initially. Crew members transected the survey area spaced approximately 30 meters apart. In cultivated areas, spacings were reduced to 10 m as visibility increased. In the shovel testing operation an approximate 30 cm test hole was dug every 30 m along the transects. The contents were then separated and thoroughly examined by trowelling for both cultural evidence and anomalies in soil composition.

Any locus of surface artifacts or subsurface shovel test finds located during the initial survey was flagged, noted on the regional map (see Figure 3), and given a preliminary "SES" site designation. Following the completion of the survey, each tentative site was more thoroughly investigated. Two methods were employed to determine its horizontal dimensions: These included either intensive surface survey where ground visibility was favorable, or systematic shovel testing at intervals along transects radiating from a datum stake which was arbitrarily planted within estimated site boundaries.

Site survey forms were completed as part of the investigation procedure. Noted on these forms were pertinent environmental factors concerning vegetation, topography, exposure, soils, drainage, slope and water source. Research procedures, site integrity, legal locations and general observations were also annotated.

Finally, geoarcheological investigations conducted at the study areas were geared toward both reconstructing the succession of local prehistoric environments and identifying those sedimentary processes responsible for the natural and cultural sequences along the floodplain. As Figure 3 shows geoarcheological test trench locations are labelled "STT" and are placed at key archeological site (= SES) areas and along transects. Trenches were up to 3 m long and 2 m deep and were designed first, to outline the local alluvial succession paralleling the archeological succession and, second, to determine to what degree and intensity utilization of the floodplain by prehistoric groups could be documented.

#### b) Specific

The archeological potential at SES-3 was recognized after study of Pennsylvania State site files disclosed the existence of previously recorded site 36Lu15 on the floodplain tract. The site form reported the presence of "fairly heavy Lamoka and Brewerton components, minor Transitional, and minor Late Woodland..."

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM

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The systematic surface survey produced artifact concentrations in the recorded site vicinity. On the basis of this preliminary site analysis, it was decided that four loci at SES-3 (A-D; former SES-3,4,5,6) warranted test excavation. Their location and setting in the immediate site area is shown in Figure 3. Additionally, three geoarcheological test trenches (STT-1-3) were placed at key locations to determine subsurface stratigraphy. Criteria for selecting test unit locations included relative artifact density, which was determined during preliminary testing, and the physiographic locale.

Examination of private collections from 36Lu15 revealed that the projectile points collected are primarily Brewerton with a few other Late Archaic diagnostics present. A typical collection from the former site 36Lu15 tract is shown in Plate 1. Commonwealth's investigations recovered two projectile point fragments from the test excavation SES-5. These have been identified as a Brewerton Eared triangle and a Lamoka-like point. The project collections are therefore consistent with other collections from the site. Site SES-3 can accordingly be assigned to the Late Archaic period and is considered to be a portion of the major site designated as 36Lu15.

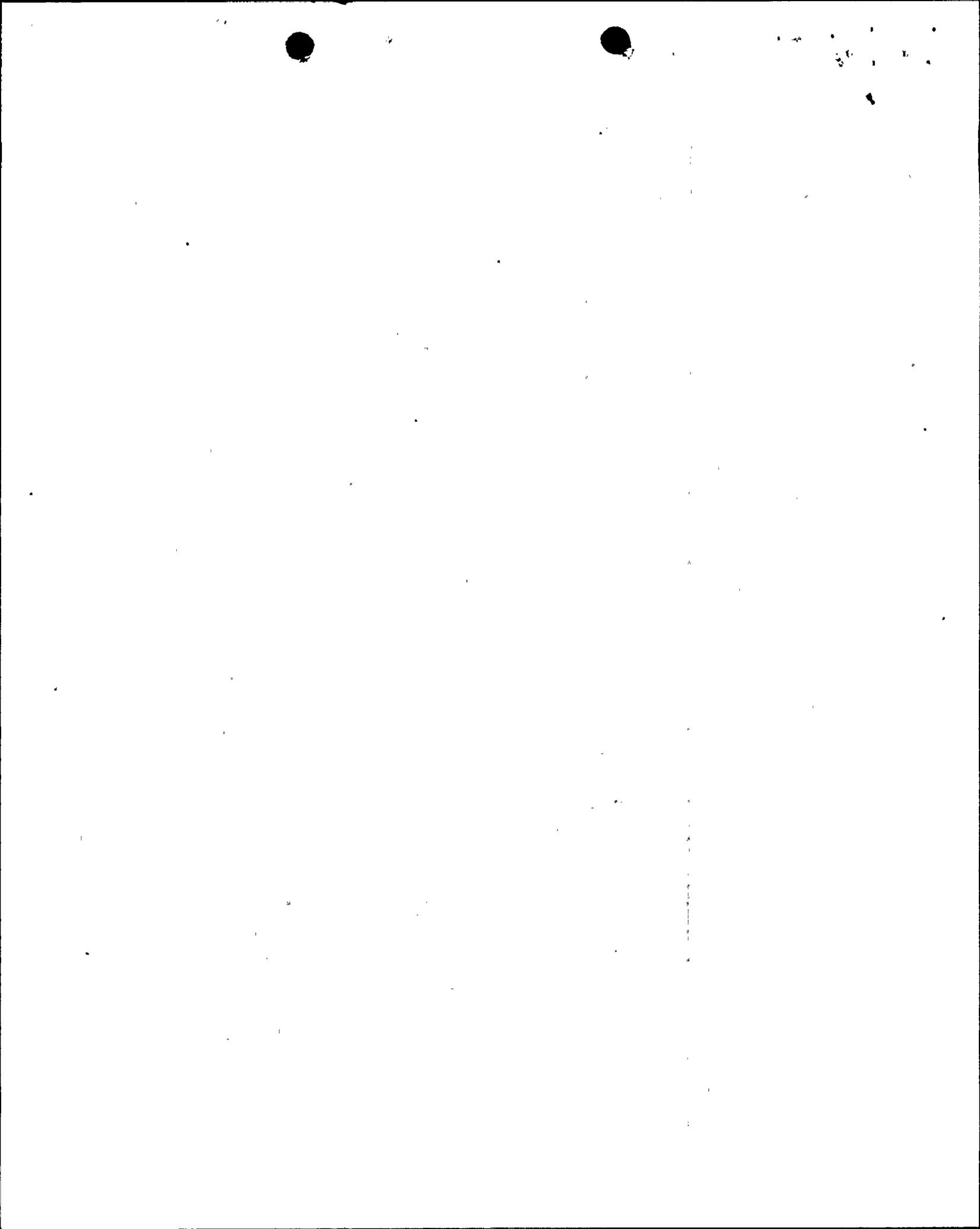
As Figure 3 shows, the three geoarcheological test trenches were placed in areas flanking the site proper. The placement is due to the fact that .6 to .9 m of surface soil had been stripped away by prior construction activity. The upper sediment housed most of the cultural materials at 36Lu15 (see Figure 3b), but the exposure at STT-3 showed the unconformable contact between late Pleistocene outwash deposits - gravels and sands - and the floodplain sandy silts associated with the Late Archaic artifacts. At SES-3 the cultural horizon (now removed) was in a plow zone 15 cm below the former surface. The horizon was probably 15-20 cm thick based on extrapolation and correlation with equivalent deposits across STT1 and STT3.

#### Boundaries

Figure 3 illustrates the general perimeters of the SES-3 distributions. The site proper consists of 4 loci that circumscribed an area of approximately 5 acres along the west bank of the Susquehanna River. Boundaries of loci were determined on the basis of shovel test inspection of the radial extent of subsurface artifact concentrations.

#### Environment

SES-3 is located in the southern portion of the SES floodplain. Soils are either well-drained silt loams or wetland silty-clays; the latter occur in



FHR-8-300A  
(11/78)

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HERITAGE CONSERVATION AND RECREATION SERVICE

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CONTINUATION SHEET

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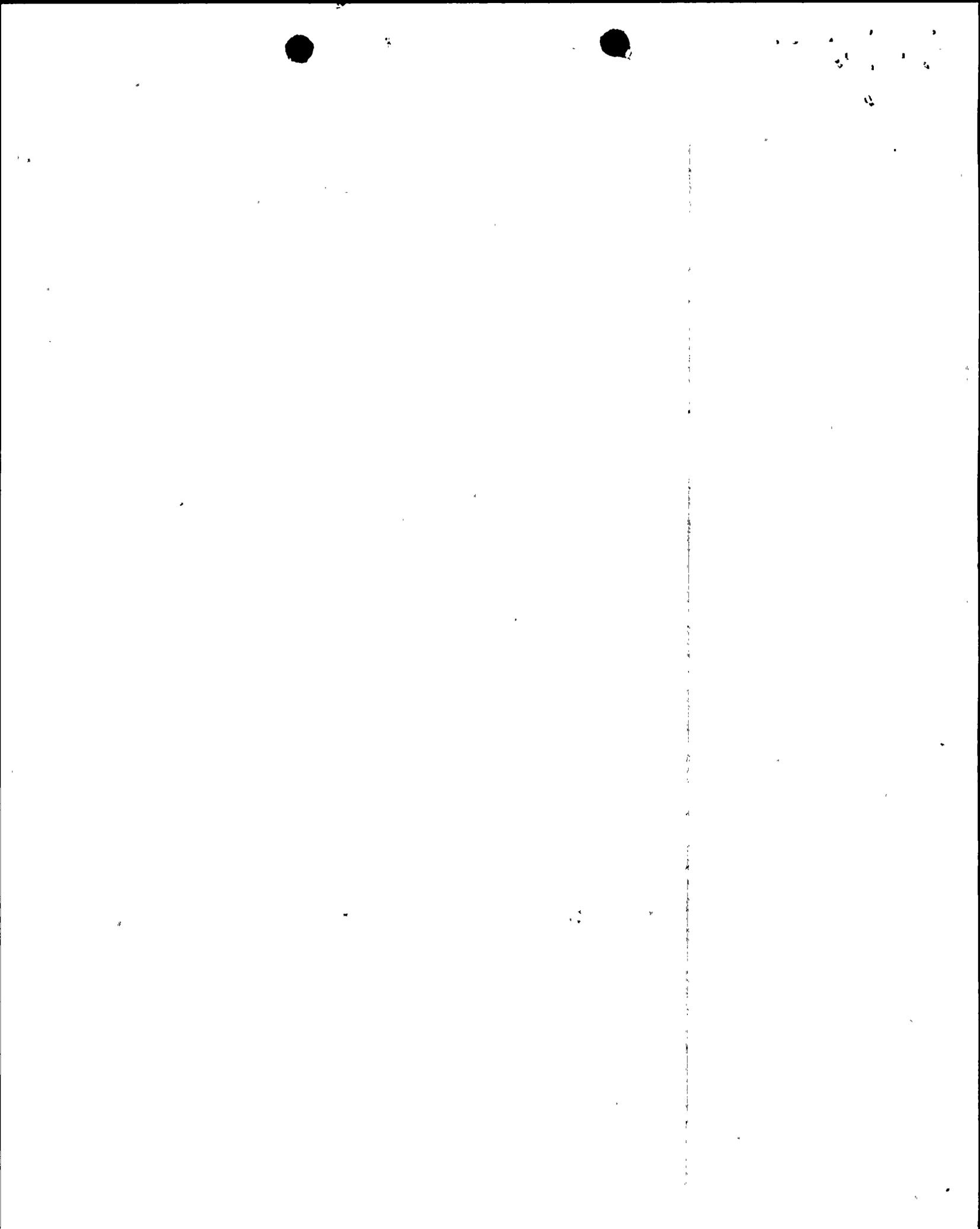
poorly drained pockets south of the site proper. The SES floodplain itself is situated within the basin of the North Branch of the Susquehanna which follows a north-south course in the immediate vicinity before winding west and southwestward around Bell Bend and towards Berwick (Figure 1). It is strategically situated along the northern tract of Bell Bend, the juncture where the Susquehanna River bends sharply to the southwest after breaching the rimming mountains of the Pocono Plateau. The floodplain attains its maximum breadth along this tract - c. three-quarters of a mile (1.2 km) - and thins out dramatically along the western elbow of the Bend (see Figure 2). At that juncture it abuts steep-sided Woodfordian (late Pleistocene) frontal kames and outwash terraces. At SES the native floodplain vegetation features both open field and upland forest types. Recently PP & L ecologists identified a total of 568 plant species, dominated by woody plants, ferns and cryptogams, and a large variety of flowering plants. The most prevalent families represented were Asteraceae, Graminae, and Rosaceae. Local vegetation has been subdivided into five community groups, including River floodplain forest, upland forest, abandoned field, open marsh and pond and agricultural field (Jacobsen 1977 and refs). The SES-3 vicinity is covered by reseeded and weeded grassy plots that were re-landscaped after earlier construction activity. The area was initially developed for private residential use and the eastern portion now houses the Susquehanna Biological Laboratory (Ichthyological Associates).

Archeological Investigations

This site was initially perceived as four separate loci identified as A through D in Figure 3. All four loci extend along, and slightly west of the river-bank. Artifacts occur between elevations of 157 and 158.5 m AMSL (515 and 520 feet), approximately 6 to 7.6 m (20 to 25 feet) above the river. The entire area, including site 36Lu15, is one of the highest elevations adjacent to the Susquehanna River in the SES area. Shovel tests at all loci revealed differential concentrations of artifacts ranging from isolated finds of flakes (loci C & D) to clusters of tools and debitage (locus A).

In order to assess the extent and depth of the archeological materials, two test pits and three deep test trenches were excavated. For recording purposes, one test pit was designated SES-3 and the other SES-5, as if two separate sites were being investigated. The SES-3 test was isolated from soil borrowing activity, and located between Locus B and the bank profile at Locus D. The SES-5 test was placed in the middle of Locus C, the highest point of that immediate area.

The soil stratigraphy in these test pits was rather simple; a basal, and culturally sterile, gravelly loam was overlain by a meter or more of silt loam. This silt loam layer thinned to the west. Soil color and texture are given in the second



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and third columns of Tables 1 and 2. The tables also summarize collections of the cultural debris recovered from the two test pits. The single flake and the hammerstone recovered from Level II (40-50 cm) at SES-5 are the only artifacts recorded from below the plow zone. Clearly, there is little potential for extensive in situ deposits remaining at 36Lu15.

While excavating a series of shovel tests along the topbank, Locus A was discovered. Locus B was located during the walkover inspection of undisturbed remnants of surface soils, when a few flakes were found just beyond the edge of one of these remnants in the soil borrowing area.

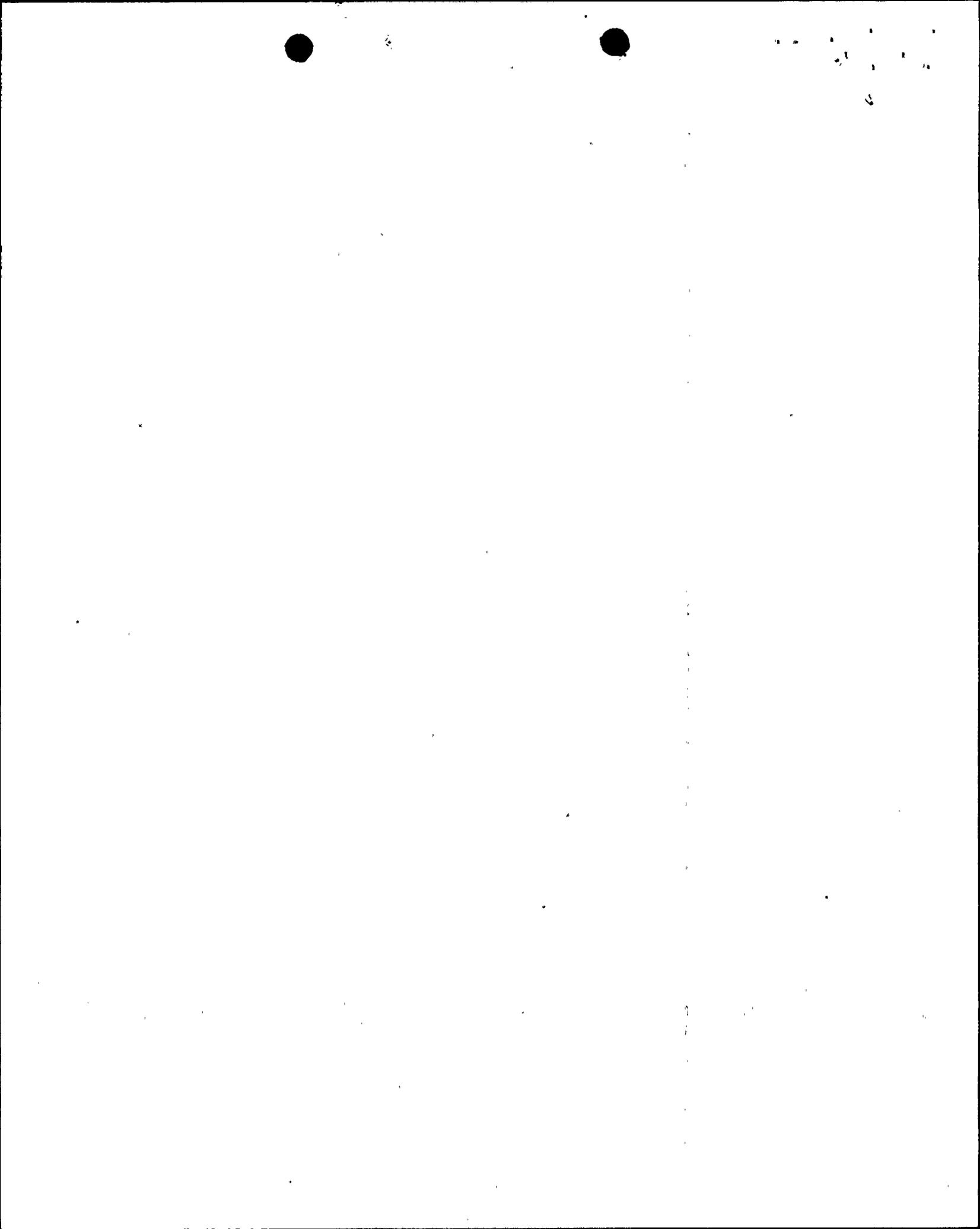
Diagnostic tools and debitage suggest that the SES-3 site was a central portion of the sizable Late Archaic campsite designated as 36Lu15.

Intrusions and Data Limitations

The upstream extension of the SES-3 rise (not pictured) is the highest point presently documenting original site levels; gradients have been modified in recent times. No materials were observed at the higher elevations. It was evident that between .6 to .9 m of soil (two to three feet) had been stripped away. Shovel tests made at these junctures yielded isolated and clusters of flakes at numerous locations.

The elevated area forms a wedge of high ground which continues along the north end of the SES floodplain. To the west this area appears (PP & L Map LF-73487 - 1966) to have been bordered at one time by a possibly intermittent tributary stream which migrated into the river just south of Locus A. The rise which bordered this channel has been greatly altered by soil borrowing and no longer resembles the landscape depicted on the 1966 map. During this borrowing activity previously recorded sites 36Lu15 and 36Lu16 (located to the north) were destroyed. Areas which had not been disturbed generally had some evidence of cultural activity while artifacts were observed beyond the edges of the borrowed tracts.

In general, only isolated portions of the original tract remain undisturbed. Commonwealth's 1980 testing program revealed that artifact concentrations do not extend below the plow zone so that preservation of major features is improbable. The former size and probable extent of the site is such that selective undisturbed areas may yet disclose archeological materials, albeit not of a primary nature.



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PAGE 2

Schuldenrein, J. (compiler)

1981

Archeological Investigations at the Susquehanna Steam Electric Station. Report R-2282A, Commonwealth Associates Inc., Jackson, Michigan.

Smith, Ira and Bill Remaley

1967

Report on Site 36Lu15, Luzerne County, Pennsylvania. On file at the Pennsylvania State Museum, Harrisburg, Pennsylvania.

TABLE 1  
 TEST EXCAVATION SUMMARY - SES-3

<u>Level</u>	<u>Depth (cm)</u>	<u>Dimensions (m)</u>	<u>Soil Color</u>	<u>Soil Texture</u>	<u>Bifaces</u>	<u>Unifaces</u>	<u>Utilized/ Retouched Flakes</u>	<u>Unmodified Flakes</u>
I	0-34	1x1	10YR3/3	Silt Loam	1	1	2	326
II	34-54	.5x.5	10YR5/6	Silt Loam	0	0	0	0

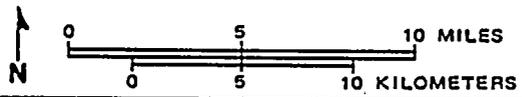
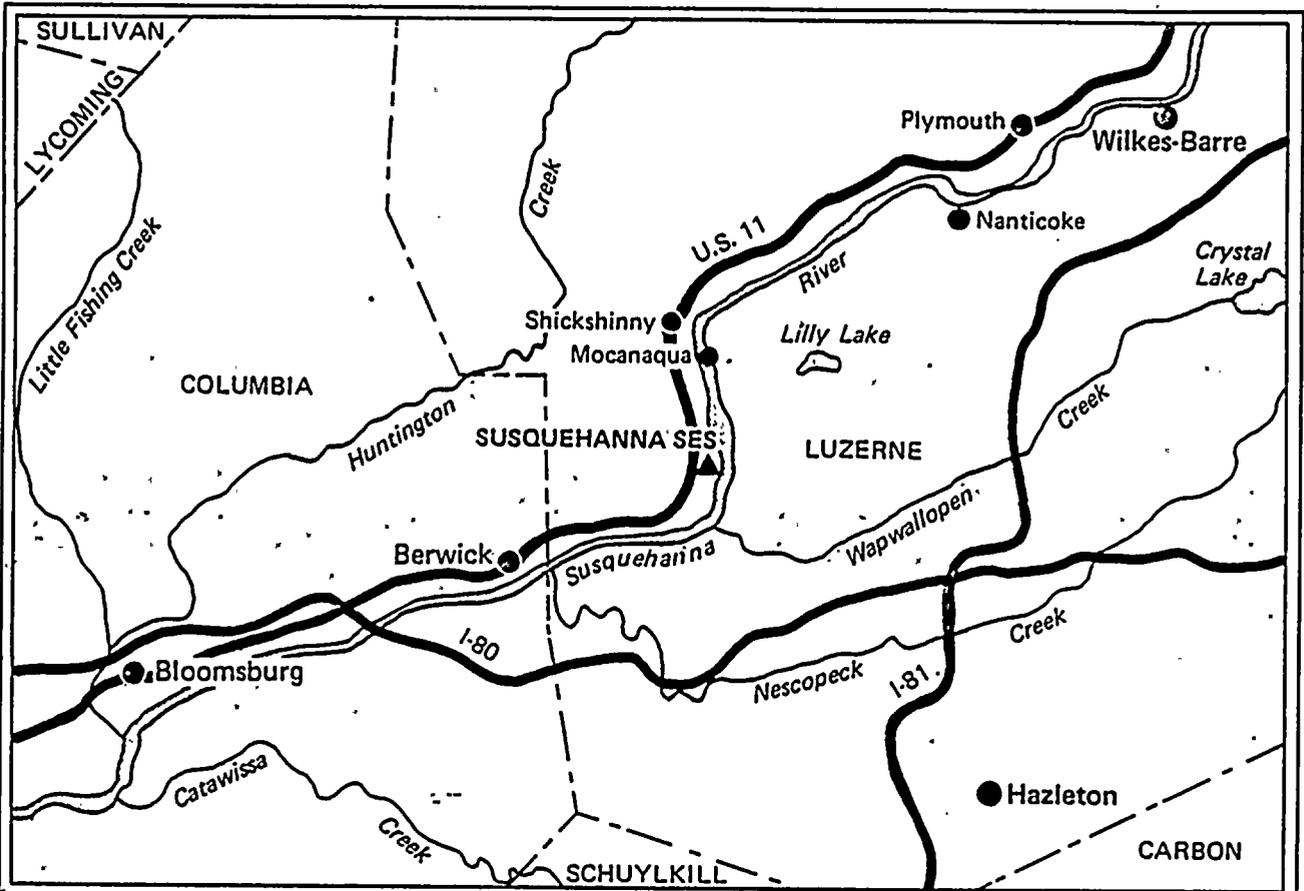


TABLE 2

## TEST EXCAVATION SUMMARY - SES-5

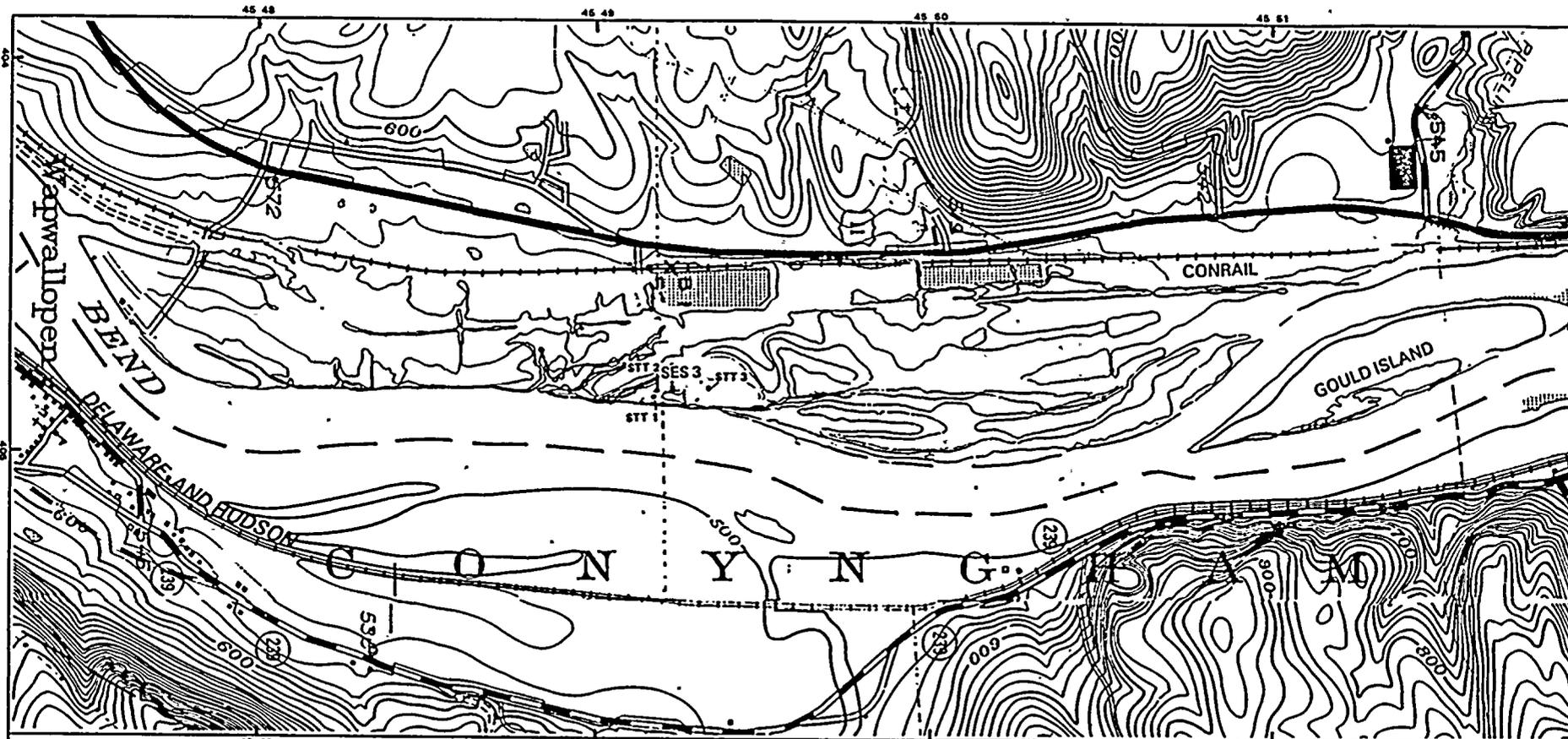
<u>Level</u>	<u>Depth (cm)</u>	<u>Dimensions (m)</u>	<u>Soil Color</u>	<u>Soil Texture</u>	<u>Projectile Points</u>	<u>Unifaces/ Scrapers</u>	<u>Utilized/ Retouched Flakes</u>	<u>Cores</u>	<u>Unmodified Flakes</u>	<u>Historic Material</u>	<u>Nails</u>
I	0-40	1x1	10YR3/4	Silt Loam	2	1	1	1	184	0	5
II	40-50	.5x.5	10YR5/8	Silt Loam	0	0	0	0	1	1	0
III	50-60	.5x.5	10YR5/8	Silt Loam	0	0	0	0	0	0	0





**FIGURE 1**  
**LOCATION OF SUSQUEHANNA SES SITE IN PENNSYLVANIA**  
**SUSQUEHANNA S.E.S.**  
 Archeological Investigations At The Pond Hill Reservoir Site





Berwick Quadrangle  
7.5 Minute Series

FIGURE 2

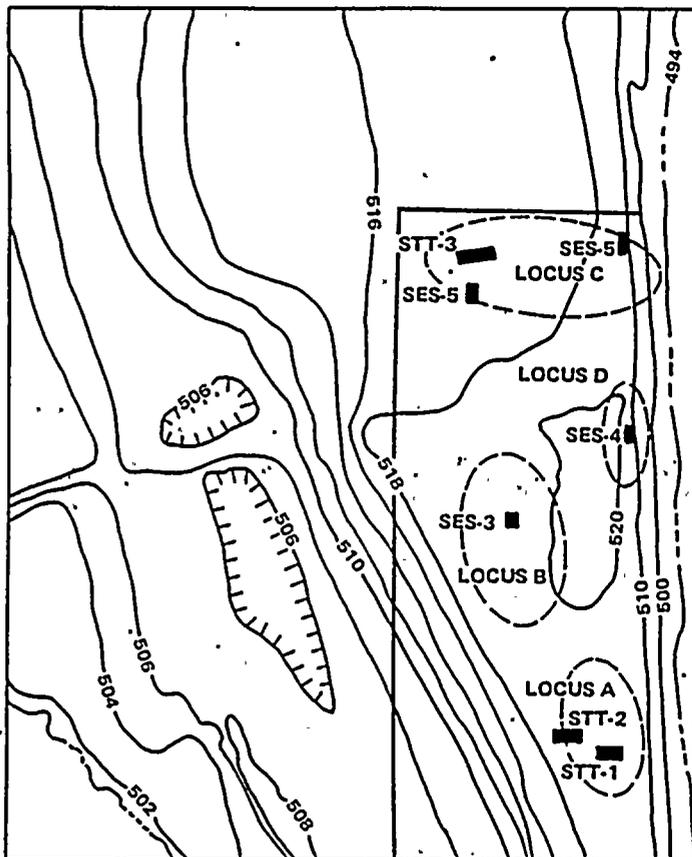
SES 3  
DEEP TEST TRENCHES, AND  
ARCHEOLOGICAL LOCALITIES  
ALONG THE SUSQUEHANNA  
S.E.S. FLOODPLAIN

SUSQUEHANNA S.E.S.  
Archeological Investigations  
At The Susquehanna  
S.E.S. Floodplain

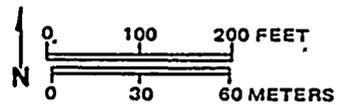
• GEOARCHEOLOGICAL TEST TRENCHES  
• EXCAVATION UNITS

UMT References  
18 404 920 45 49 340  
Zone Easting Northing





SES-3 topographic and spatial map showing locations of excavation units, deep test trenches, and collection loci.



a. Location of impacted site 36Lu15. Primary occupation was in background and in topographic depression beyond weed and grass line.



b. Profile of SES-3, west face. Chaining pins mark depth of plow zone and artifact scatter.

FIGURE 3

SES-3 SURVEY, EXCAVATION AND GEO-ARCHEOLOGICAL TESTING AREA

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain



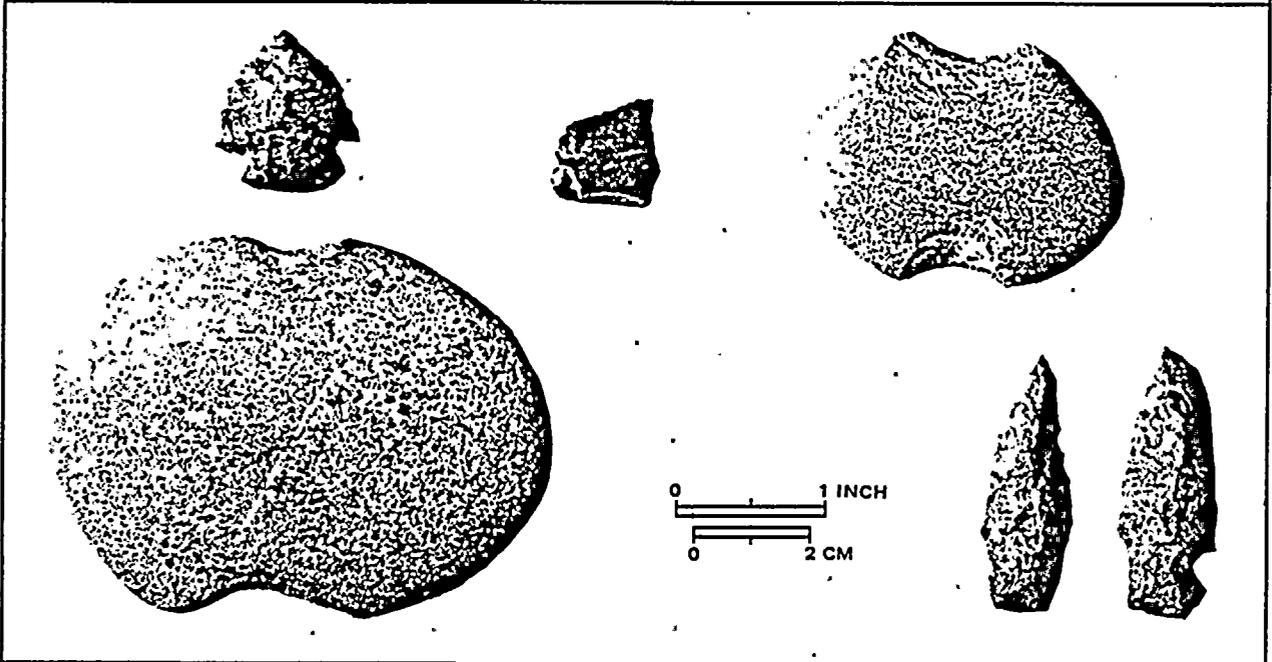
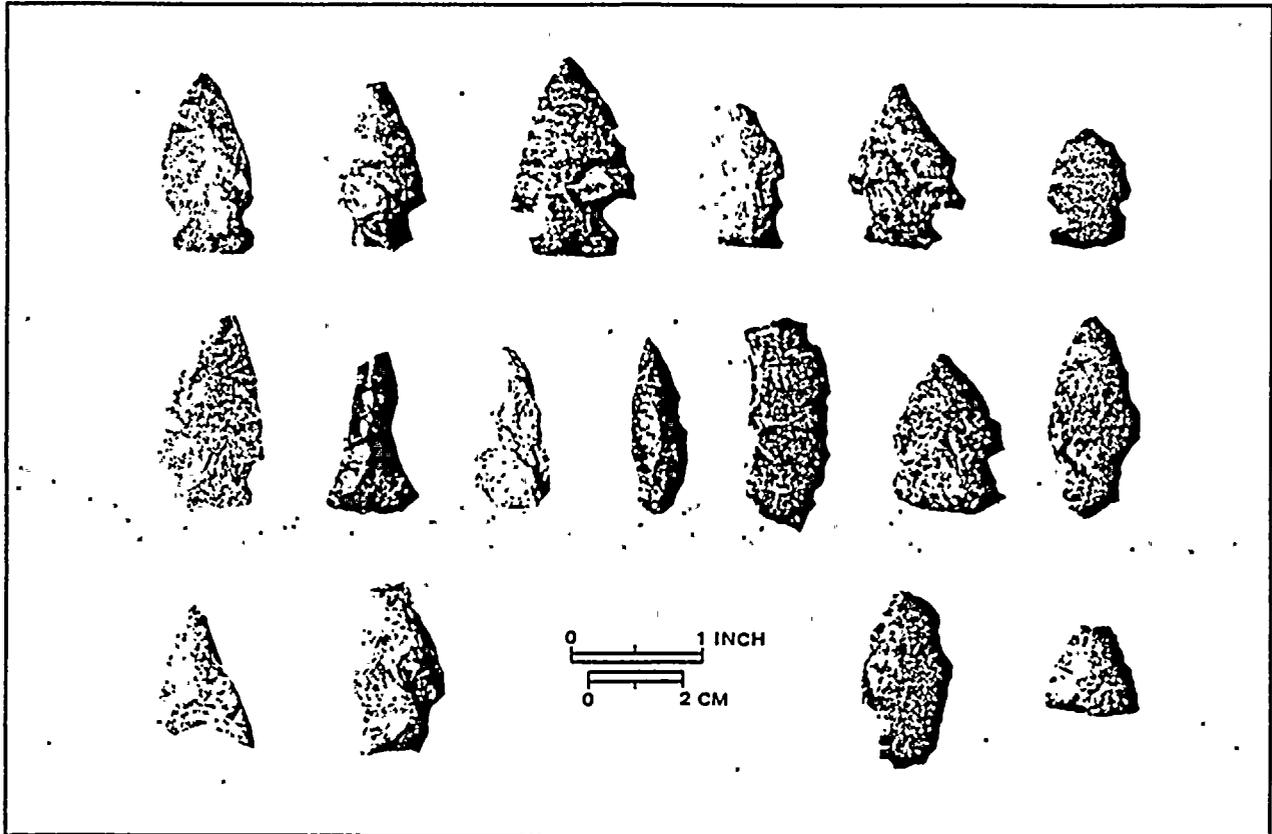


PLATE I

MISCELLANEOUS LATE ARCHAIC ARTIFACTS: SES-3 (36 Lu 15)

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain





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# 8. Significance

Period	Areas of Significance—Check and justify below			
<input checked="" type="checkbox"/> prehistoric	<input checked="" type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates 3000-1000 BC

Builder/Architect

**Statement of Significance (in one paragraph)**

The significance of SES-3 lies in the fact that its setting was optimal for Late Archaic and Transitional period prehistoric utilization. Geomorphological analyses (Schuldenrein et al. 1981) showed that the cultural deposits are associated with floodplain sediments - largely clays and silts - deposited by a gentle, slow moving, and incrementally aggrading floodplain. Studies of contemporaneous and analagous settings in the eastern United States including Shawnee Minisink, a multi-component prehistoric site only 60 miles east of Susquehanna, illustrate that by 4000 BP active channeling and levee sedimentation along the Susquehanna had ceased and aquatic settings had stabilized to the degree that essentially modern biomes took hold and defined longer-term resource zones. The Late Archaic/Transitional period population expansion is traceable to the spread of these increasingly attractive riverine settings.

Analyses of raw material types utilized at the Late Archaic site of SES-3 shows that argillite was the preferred manufacturing stone for tool production at the time. Examination of raw material distributions along the Susquehanna floodplain survey tract showed that the individual prehistoric periods could be differentiated on that basis as well as on typological grounds (Schuldenrein et al. 1981). Consequently, it was inferred that a single - Late Archaic - component was represented at SES-3 and that, despite the relatively widespread destruction of the site, evidence supports former existence of a major Late Archaic settlement in the area with secondary loci distributed across a 5-acre area. Accordingly, the SES-3 site is important since:

1. The site sedimentary environment could be identified by stratigraphic methods and equivalent depositional units across the local floodplain could be correlated and linked with Late Archaic occupational loci;
2. Analyses of raw material use proved to be a diagnostic indicator for classifying the site as a Late Archaic settlement;
3. Synthesis of previous reports with the present data recovered point to an extensive Late Archaic occupation along a key stretch of the Susquehanna River.

Similar archo-sedimentary settings, raw material distributions, and site utilization tracts may provide diagnostic and predictive lacunae for the location of Late Archaic sites in future river surveys.

## 9. Major Bibliographical References

Kent, Barry C., Ira F. Smith, and Catherine McCann  
1971 Foundations of Pennsylvania Prehistory. Anthropological Series of the  
Pennsylvania Historical and Museum Commission No. 1.

## 10. Geographical Data

Acreeage of nominated property 5 acres

Quadrangle name Berwick

Quadrangle scale 1:24,000

UMT References

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1	1	8
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Verbal boundary description and justification

See Description: Boundaries entry

List all states and counties for properties overlapping state or county boundaries

state code county code

state code county code

## 11. Form Prepared By

name/title Joseph Schuldenrein

organization Commonwealth Associates Inc.

date 7/26/82

street & number 209 East Washington

telephone (517) 788-3561

city or town Jackson

state Michigan 49201

## 12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national  state  local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature

title

date

For HCERS use only  
I hereby certify that this property is included in the National Register.

date

Keeper of the National Register

date

Chief of Registration

**United States Department of the Interior  
Heritage Conservation and Recreation Service**

For HCRS use only  
received  
date entered

**National Register of Historic Places  
Inventory—Nomination Form**

See instructions in *How to Complete National Register Forms*  
Type all entries—complete applicable sections

**1. Name**

historic SES-6 and 361u16  
and/or common Riverlands Recreation Area, Susquehanna Steam Electric Station, site SES-6

**2. Location**

street & number R.D. 1, U.S. Route 11, Salem Township  not for publication  
city, town Berwick  vicinity of congressional district  
state Pennsylvania code 42 county Luzerne code 079

**3. Classification**

<b>Category</b>	<b>Ownership</b>	<b>Status</b>	<b>Present Use</b>	
<input type="checkbox"/> district	<input type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input checked="" type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input checked="" type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
		<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

**4. Owner of Property**

name Pennsylvania Power and Light Co. Allegheny Electric Cooperative Inc.  
street & number 2 N. 9th Street P.O. 1256  
city, town Allentown, Pennsylvania 18101 vicinity of 17108 state Harrisburg, Pennsylvania

**5. Location of Legal Description**

courthouse, registry of deeds, etc. County Clerk  
Luzerne County Courthouse  
street & number North River Street  
city, town Wilkes-Barre state Pennsylvania 18705

**6. Representation in Existing Surveys**

1) Archeological Investigations at the Susquehanna Steam Electric Station  
title 2) Pennsylvania State Museum Archeological  
has this property been determined eligible?  yes  no  
Site Survey and Recording Program - File  
date 1) 1981; 2) 1967  federal  state  county  local  
depository for survey records William Penn Memorial Museum and Archives Building  
Box 1026  
city, town Harrisburg state Pennsylvania

## 7. Description

<b>Condition</b>		<b>Check one</b>	<b>Check one</b>
<input type="checkbox"/> excellent	<input checked="" type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

Describe the present and original (if known) physical appearance

### Context

#### a) General

SES-6 is one of four prehistoric sites judged to be significant in a systematic archeological and geoarcheological survey of the floodplain tract of the Susquehanna River. The work was undertaken by an archeological team from Commonwealth Associates, Inc., Jackson, Michigan, for Pennsylvania Power and Light Company. Figure 1 illustrates the location and setting of the study area in east-central Pennsylvania. Fieldwork was undertaken by a four-man team for a six-week period running from June-mid-July, 1980. The field phase was followed up by analysis and write-up.

Field methods involved both surface walkover and shovel testing initially. Crew members transected the survey area spaced approximately 30 m apart. In cultivated areas spacings were reduced to 10 m as visibility increased. In the shovel testing operation an approximate 30 cm test hole was dug every 30 m along the transects. The contents were then separated and thoroughly examined by trowelling for both cultural evidence and anomalies in soil composition.

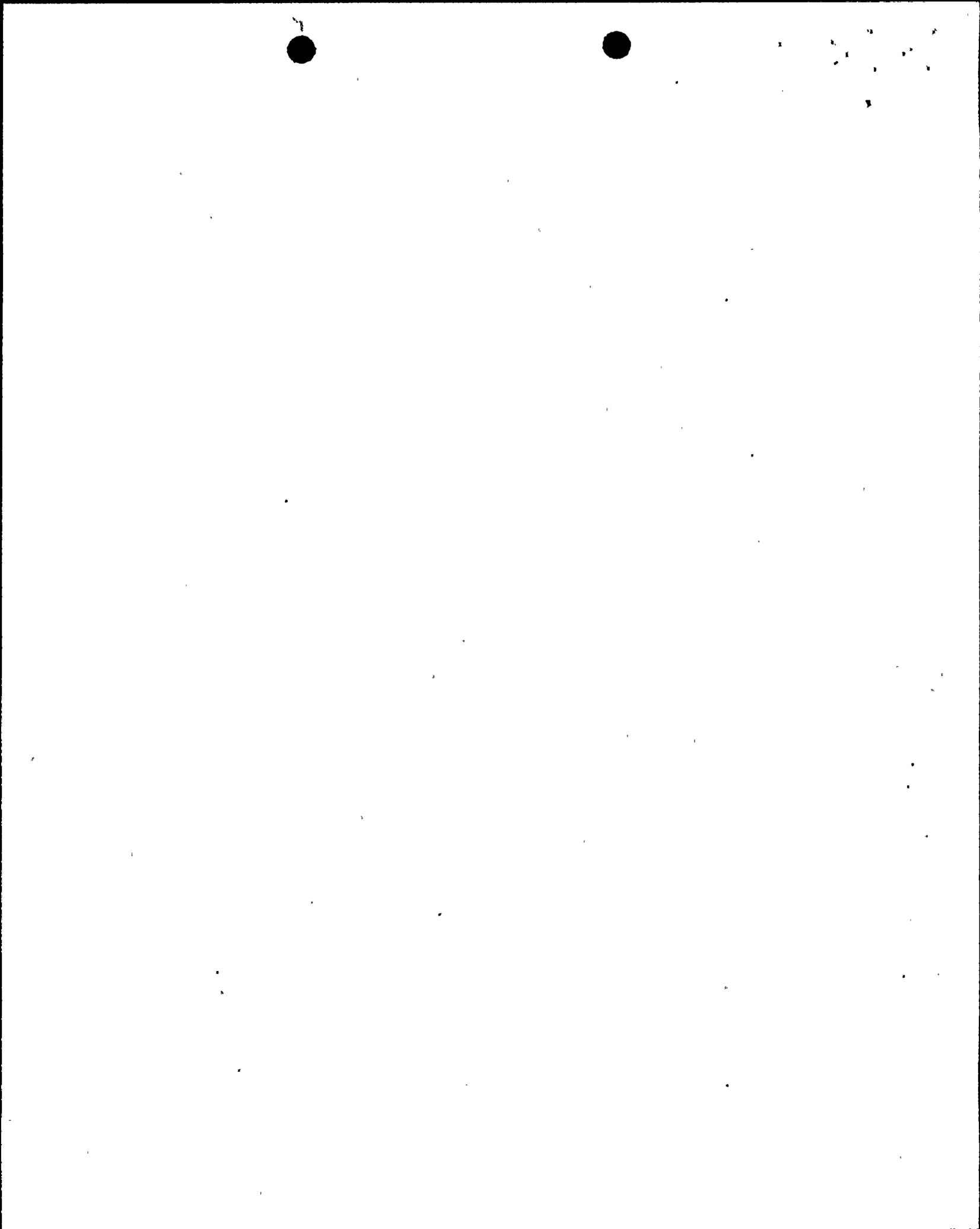
Any locus of surface artifacts or subsurface shovel test finds located during the initial survey was flagged, noted on the regional map (see Figure 2), and given a preliminary "SES" site designation. Following the completion of the survey, each tentative site was more thoroughly investigated. Two methods were employed to determine its horizontal dimensions. These included either intensive surface survey where ground visibility was favorable, or systematic shovel testing at intervals along transects radiating from a datum stake which was arbitrarily planted within estimated site boundaries.

Site survey forms were completed as part of the investigation procedure. Noted on these forms were pertinent environmental factors concerning vegetation, topography, exposure, soils, drainage, slope and water source. Research procedures, site integrity, legal locations and general observations were also annotated.

Finally geoarcheological investigations conducted at the study areas were geared toward both reconstructing the succession of local prehistoric environments and identifying those sedimentary processes responsible for the natural and cultural sequences along the floodplain. As Figure 3 shows geoarcheological test trench locations are labelled "STT" and are placed at key archeological site (= SES) areas and along transects. Trenches were up to 3 m long and 2 m deep and were designed first, to outline the local alluvial succession paralleling the archeological succession and, second, to determine to what degree and intensity utilization of the floodplain by prehistoric groups could be documented.

#### b) Specific

Examination of Pennsylvania site files indicated that site 36Lu16, located on the floodplain tract featured Late Archaic Brewerton and Lamoka components as well as aceramic Transitional and Late Woodland artifacts (Smith 1967). Previous test excavations in the vicinity were conducted there in 1967 and were reported by R. Solenberger of Bloomsburg College (1980, letter to U.S.N.R.C.). His unpublished research involved



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placement of two test pits which distinguished four separate "soil levels" to a depth of 22 inches. Artifacts also suggested an Archaic period occupation, and the disposition of subsurface cultural residues and concentrations offered possibilities of feature preservation. These excavations were never followed up. Interviews with PP&L personnel as well as CAI's reconnaissance and the initial site report show that the site was severely impacted prior to installation of the Riverlands transmission line in 1978.

During the CAI survey the site was discovered eroding out of the bank of a recently excavated drainage ditch which had cut through the natural levee on the right bank of the Susquehanna River (Figure 3). On both banks of the ditch numerous artifacts were exposed along the backslope of the levee. During the initial survey a small collection of surface artifacts was made, including small sherds and flakes from both the north and south side banks of the drain. In addition to this surface examination, several shovel tests were placed on each bank revealing that the north bank, the higher of the two, contained buried artifacts. On the south bank artifacts and pieces of charcoal were found. Preliminary analyses of the cultural materials recovered from both erosional banks resulted in placement of two test pits, A & B (see Figure 3). Test Unit A was placed on the south bank to expose a two meter wide profile in an east-west direction. Test Unit B was placed on the opposite bank with the two meter axis oriented in a north-south direction. Additionally, three deep test trenches, STT-4, 5 and 6, were placed in the site vicinity, just south of Test Unit A (Figure 3) to determine subsurface stratigraphy and to test for features. STT-6 revealed a feature and cultural remains (STT-6/C1) between 40 and 70 cm below the surface. Two additional features were excavated at SES-6. Criteria for selecting test unit locations included relative artifact density, which was determined during preliminary testing, and the physiographic locale.

Artifacts recovered over the course of the excavation revealed diagnostic components of an *in situ* Middle to Late Woodland horizon. The pottery from the cultural feature SES-6/B1 was the most significant intact assemblage recovered over the course of the work along the floodplain. Its stratigraphic position is equivalent to layer STT-4 (shown in Figure 3) and chief attributes of the pottery include cordmarking and decoration with nodes, punctates and cord impressions. The sole diagnostic projectile point base found is from a Lagoon point (Kinsey 1972:434) also considered to be a Middle Woodland form.

The radiocarbon sample from the lower portion of feature SES-6/B1 dated to 2000 years BP  $\pm$  130 (Beta-1801), or 50 BC  $\pm$  130 years, considerably earlier than Kinsey's (1972:460) AD 980 date for Clemson Island ceramics. It is possible that the feature is stratified, the ceramics being recovered from the upper portion of the feature, and the carbon date sample being taken from below the ceramics.

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As Figure 3 shows the three geoaerchological test trenches were placed in areas to the south of the site proper. The placement was designed to provide a schematic cross-section of the site subsurface stratigraphy as well as its micro-environmental setting. Figure 4 shows the topographic and stratigraphic relations that obtained over the course of Middle-Late Woodland times. The dashed line demarcates the prehistoric surface which capped a deposition of several meters of early-late Holocene suspended load sediment. While Pleistocene sand-gravel deposits were not encountered over the course of the testing, local investigations suggest that they occur about 3-4 m below the present land surface. The cultural horizons (units B & C, Figure 5) vary from 10-40 cm in thickness.

Boundaries

Figure 3 illustrates the locations of the test excavation and trench units; approximate boundary lines are sketched but cannot be established with certainty. Shovel testing and excavation suggests that the site extends over a 2-acre area.

Environment

SES-6 is located in the central portion of the SES floodplain. Soils are either well-drained silt loams or wetland silty-clays; the former are more prominent in this portion of the floodplain. The SES floodplain itself is situated within the basin of the North Branch of the Susquehanna which follows a north-south course in the immediate vicinity before winding west and southwestward around Bell Bend and towards Berwick (Figure 1). It is strategically situated along the northern tract of Bell Bend, the juncture where the Susquehanna River bends sharply to the southwest after breaching the rimming mountains of the Pocono Plateau. The floodplain attains its maximum breadth along this tract - c. three-quarters of a mile (1.2 km) - and thins out dramatically along the western elbow of the Bend (see Figure 2). At that juncture it abuts steep-sided Woodfordian (late Pleistocene) frontal kames and outwash terraces. At SES the native floodplain vegetation features both open field and upland forest types. Recently, PP&L ecologists identified a total of 568 plant species, dominated by woody plants, ferns and cryptogams, and a large variety of flowering plants. The most prevalent families represented were Asteraceae, Graminae, and Rosaceae. Local vegetation has been subdivided into five community groups including River floodplain forest, upland forest, abandoned field, open marsh and pond and agricultural field (Jacobsen 1977 and refs). The SES-6 vicinity features a more open vegetation cover than that of the southern floodplain, although the immediate topography is more differentiated. The floodplain landscape is very mildly undulating consisting of gentle longitudinally oriented rises and depressions associated with a former subdued ridge and swale setting.

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Archeological Investigations

The test excavations at SES-6 revealed two different profiles. The soil textures, Munsell colors, and tabulations of cultural debris are presented in Tables 1, 2, and 3. Comparisons of these summaries show differences in strata thickness and artifact content. Level I in Test A produced artifacts immediately below the surface while the upper 45 cm at Test B were sterile except for the three artifacts recovered at the base of the level. In Test B this first level was excavated as a single unit because the loose textured soil and environmental setting suggested relatively recent deposition. The soil profiles for both tests show intergradation to a silt loam below the upper layer of sandy loam. This silt loam changes into a clay loam with greater depth, but at disparate depths in the two tests: approximately 40 cm in Test Unit A, approximately 110 cm in Test Unit B. The profiles of these two tests are basically similar, but show considerable variation in actual depths of different horizons. These differences are considered solely the result of varying deposition patterns in the two test locations. Three features were identified during CAI's excavations at SES-6 and were designated SES-6/A1, SES-6/B1 and STT-6/C1 according to the test units in which they were found.

Feature SES-6/A1 is a dark lens of soil which begins at a depth of 55 cm and extends to 75 cm. The south wall of the excavation unit showed the feature to extend laterally 75 cm east from the southwest corner; there were no discernible boundaries present in the west wall profile. This may reflect the truncation of the site by the recently excavated drainage ditch.

Feature SES-6/B1 first became evident from large numbers of pottery sherds, including a single large Clemson Island rim fragment recovered in the upper excavation level. The feature was encountered in the west wall of the test trench and was vertically bisected by the stepping of the excavations. It appears to have been a steep sided basin which was virtually circular in plan view. Approximately 60 percent of the feature was excavated. The fill contained abundant charcoal, bone, ash, and artifacts. Bone fragments which were recovered were too fragmentary and burned to identify in detail; they appear to be those of a medium to large mammal. A small charcoal sample was taken from this feature for radiometric dating, and the resultant date was 2000±130 years (BP) (Beta-1801). Below the core of the feature the stained soil continues but it is not particularly rich in lithic or ceramic artifacts.

Feature STT-6/C1 was first encountered at a depth of 40 cm and extended to a depth of approximately 53 cm. Figure 5 illustrates the stratigraphic context of the feature and Table 3 summarizes its contents. It contained fragments of charcoal and bone as well as freshly flaked and retouched pieces of argillite

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that appeared to be associated with the same assemblage. Burnt clay and other indications of firing distinguished the feature matrix. Stratigraphic relations suggest that the feature is contemporaneous with unit C at STT-6 and may be equivalent to the occupation described for SES-6. Preservation of the faunal material was poor and the bone was too fragmentary to permit precise identification of species, though the gross morphology suggested a possible avian form.

As Table 2 shows, test unit B produced a large number of ceramic artifacts, especially at depth 45-61 cm. In all, 51 quartz tempered sherds were recovered over the course of the limited excavation. Identifications were made by comparing the larger sherds with previously classified Pennsylvania pottery types. There appears to be a single component represented, Clemson Island Noded (Kent et al. 1971:420). As suggested above, the attributes are diagnostic of a Middle to early Late Woodland occupation. Representative artifacts are illustrated in Plate 1.

Intrusions and Data Limitations

Abundant artifacts, charcoal, bone and associated cultural residues were found eroding out of both banks of the SES-6 location. It was apparent that this erosion has been proceeding since at least 1978 when the Riverlands Transmission Line construction activity was completed, and had been accelerated in rainy months. The east-west drainage cut is approximately 5 m (16.4 feet) wide at the levee and is part of a drainage system being developed in the SES area. This system approximates the former naturally occurring drainage pattern until it cuts the levee. The levee and the riverbank to the east are wooded and brush-covered. This protective matting inhibits site deterioration in this portion of the site. To the west are disturbed and fallow fields which had been low wet areas prior to recent construction work (PP&L Map LF-73487 - 1966) and these may have housed part of the site formerly. The top of the levee is at an elevation of approximately 154.8 m AMSL (508 feet) and is 1.5 m (4.9 feet) above the lowest area immediately west of the site area. Since the site is approximately 50 m (164 feet) west of the river at an elevation of approximately 4.6 m (15 feet) above the river (Figure 3), it is probable that the southeastern portions of the site, as well as its northern end are reasonably intact. SES-6 is a probable Middle Woodland site that provided initial evidence for the existence of an occupation horizon with possible suggestions of activity areas. The site was discovered as a result of the profiles exposed by the drainage ditch that was cut through it. The erosion that is occurring along the cut is already destroying the archeological evidence and will continue to do so if not checked. Preservation of this significant resource would include soil infilling, seeding with protective plantings, and grading of exposed profiles, a procedure already initiated by PP&L.



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PAGE 2

Kinsey, Fred W.

1972

Archeology in the Upper Delaware Valley. Anthropological Series  
of the Pennsylvania Historical and Museum Commission No. 2.

Ritchie, William A.

1965

The Archeology of New York State. Natural History: New York.

Schuldenrein, J. (compiler)

1981

Archeological Investigations at the Susquehanna Steam Electric  
Station. Report R-2282A, Commonwealth Associates Inc., Jackson,  
Michigan.

Smith, Ira and Bill Remaley

1967

Report on Site 36Lu16, Luzerne County, Pennsylvania. On file  
at the Pennsylvania State Museum. Harrisburg, Pennsylvania.





TABLE 3

## DEEP TEST EXCAVATION SUMMARY - SES-6 (STT-6)

<u>Level</u>	<u>Depth</u>	<u>Uniface Tools</u>	<u>Unmodified Flakes</u>	<u>Pebbles</u>
I	0-40	0	0	0
II	40-53 (Feature)	0	15	0
III	53-70	1	5	1
IV	70 +	0	0	0

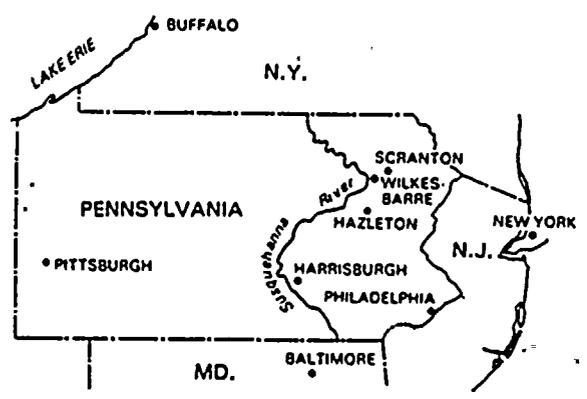
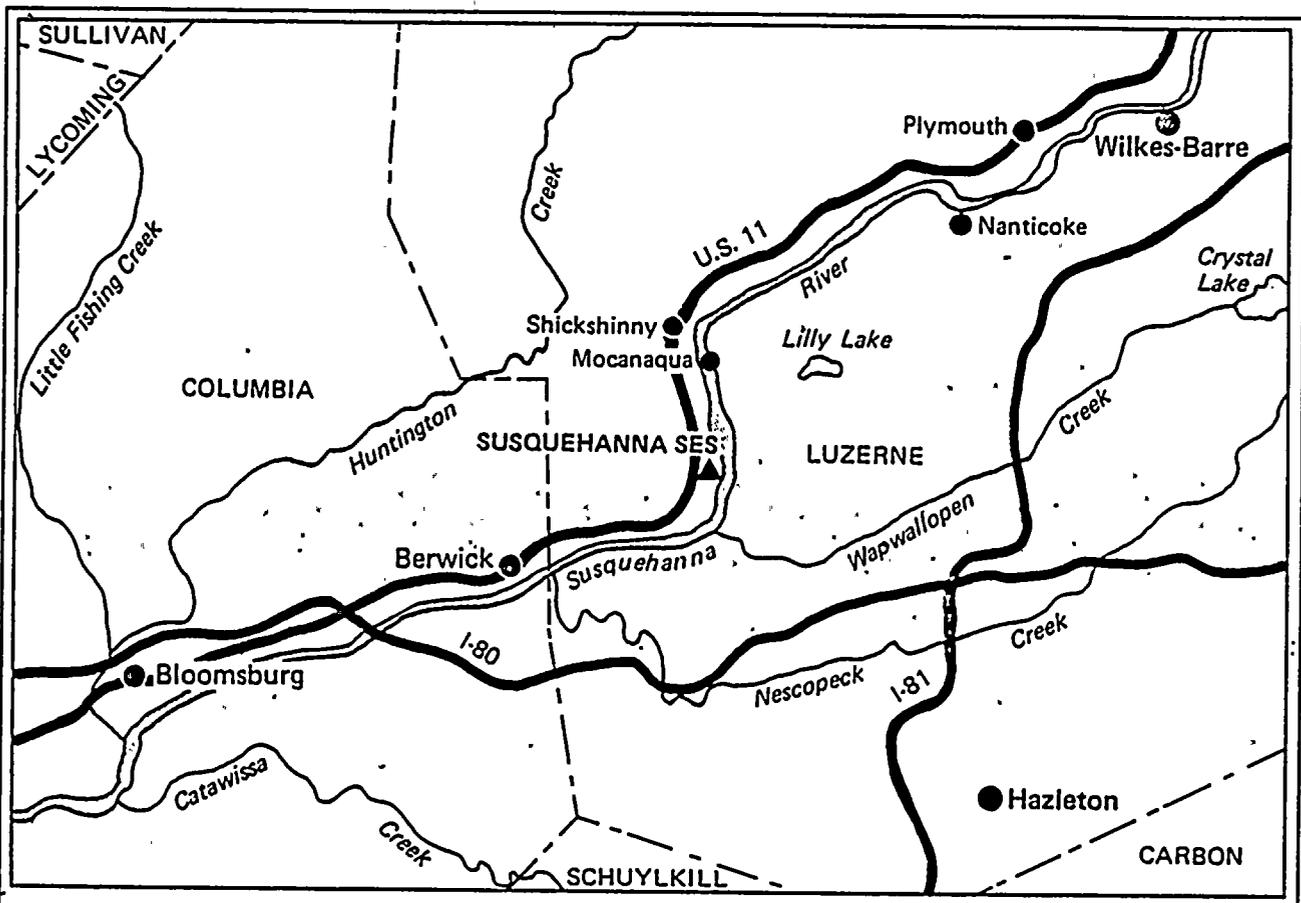
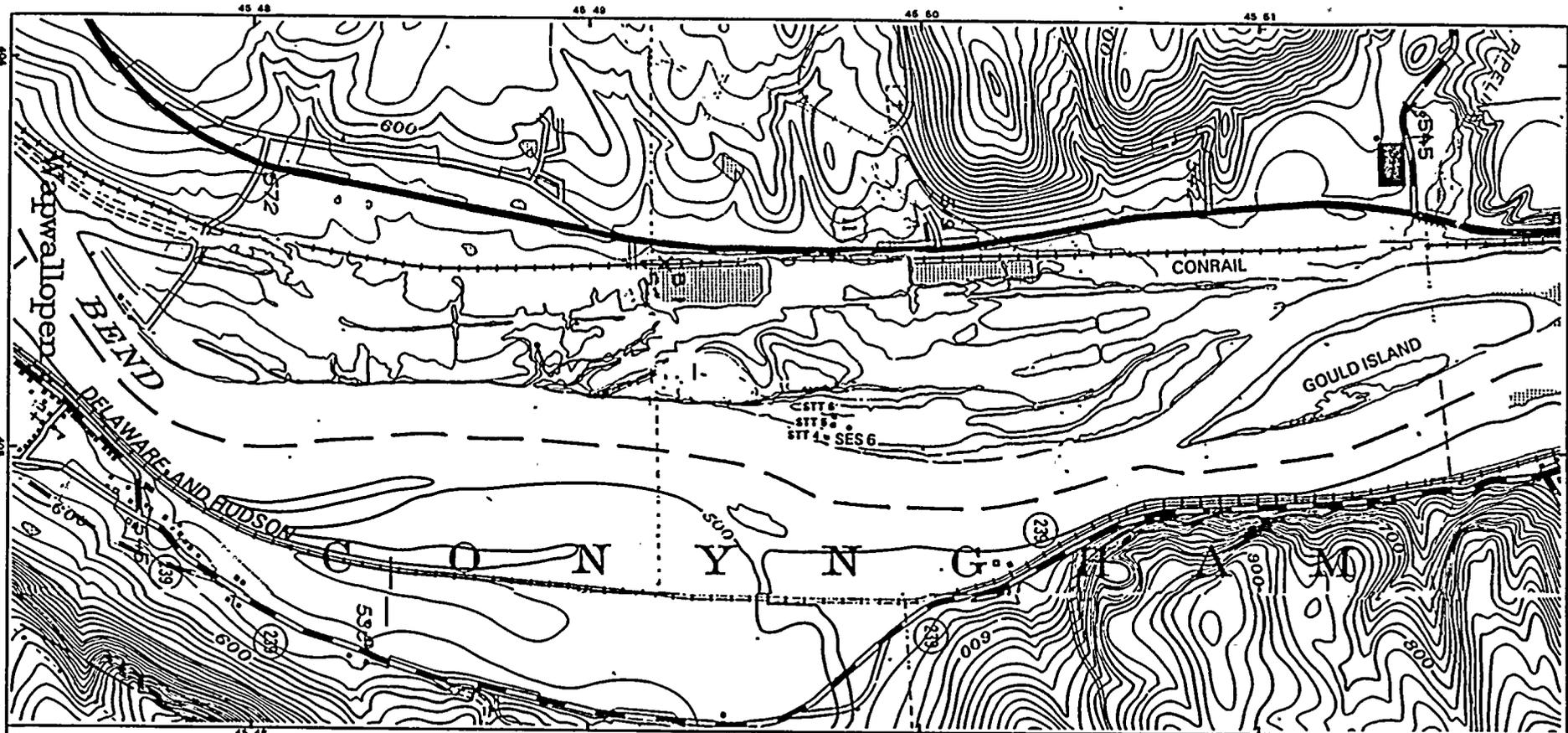


FIGURE 1  
 LOCATION OF SUSQUEHANNA SES SITE IN PENNSYLVANIA  
 SUSQUEHANNA S.E.S.  
 Archeological Investigations At The Pond Hill Reservoir Site





Berwick Quadrangle  
7.5 Minute Series

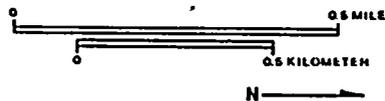
FIGURE 2

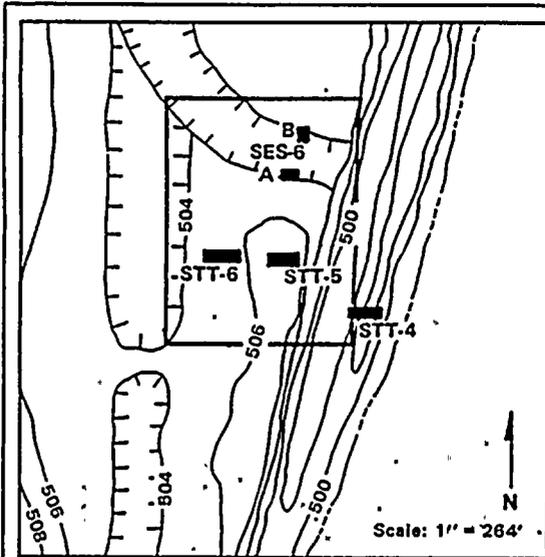
SES 6  
DEEP TEST TRENCHES, AND  
ARCHEOLOGICAL LOCALITIES  
ALONG THE SUSQUEHANNA  
S.E.S. FLOODPLAIN

SUSQUEHANNA S.E.S.  
Archeological Investigations  
At The Susquehanna  
S.E.S. Floodplain

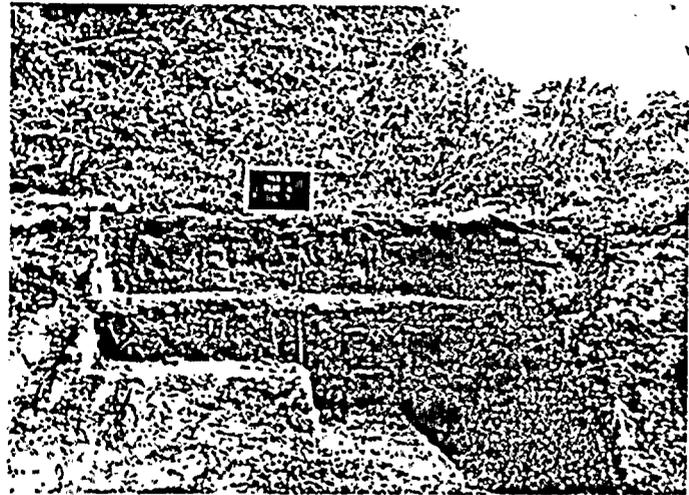
• GEOARCHEOLOGICAL TEST TRENCHES  
• EXCAVATION UNITS

UMT References  
18 405 020 45 49 680  
Zone Easting Northing





a. Distribution of excavation units and test trenches.



b. Excavation profile: SES 6-A (south face)

c. Excavation profile: SES 6-B (north face)



d. Stratigraphic section: SES 6-B (north face)

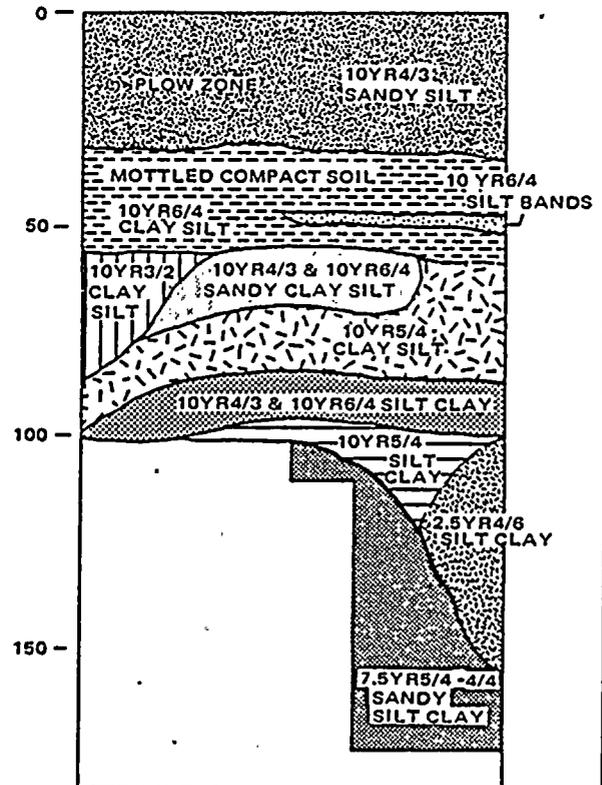


FIGURE 3

SES-6 SURVEY, EXCAVATION AND GEO-ARCHEOLOGICAL TESTING AREA

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain



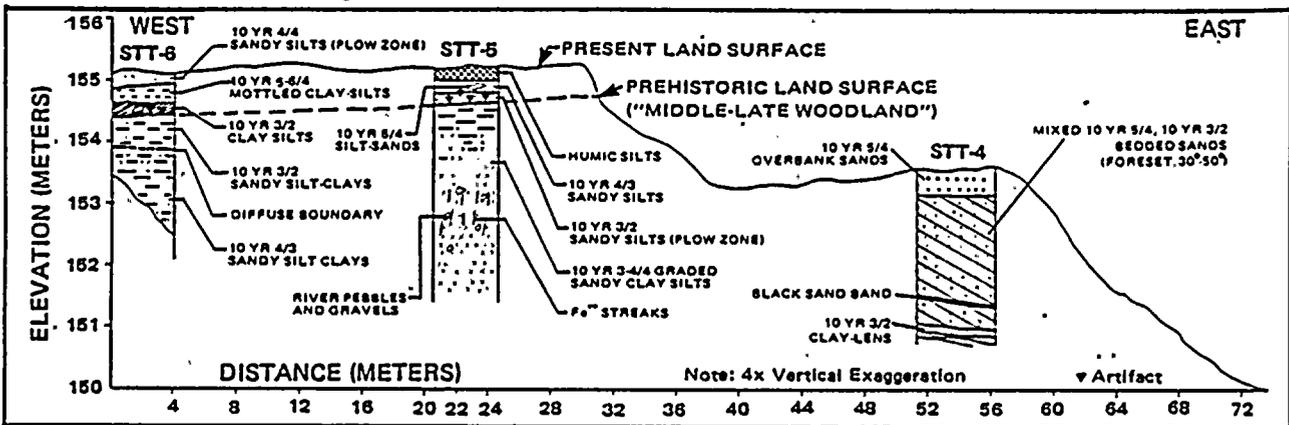


FIGURE 4  
 TRANSECT ACROSS CENTRAL AREA - STT 4 • STT 5 • STT 6  
 SUSQUEHANNA S.E.S.  
 Archeological Investigations At The Susquehanna S.E.S. Floodplain

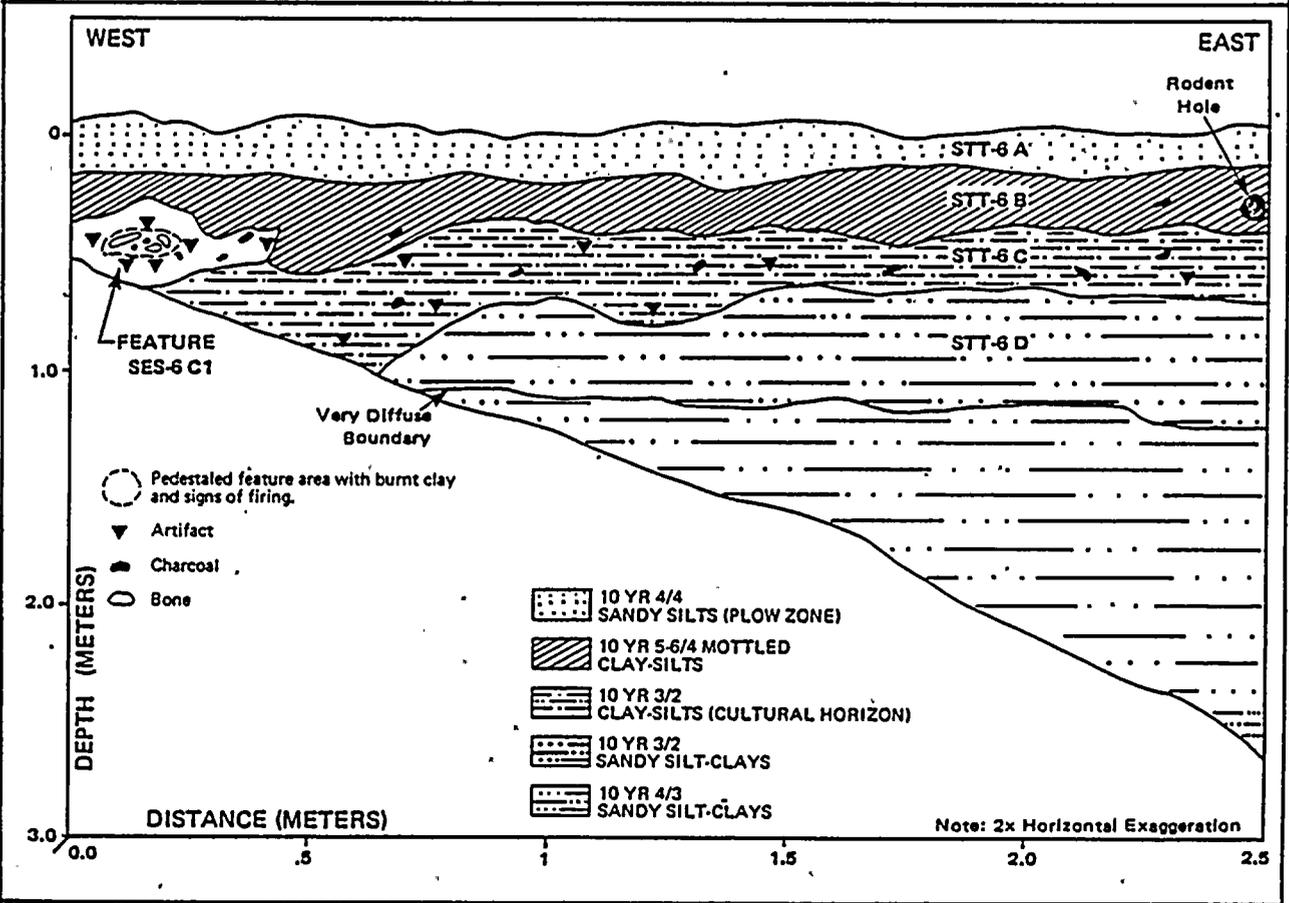
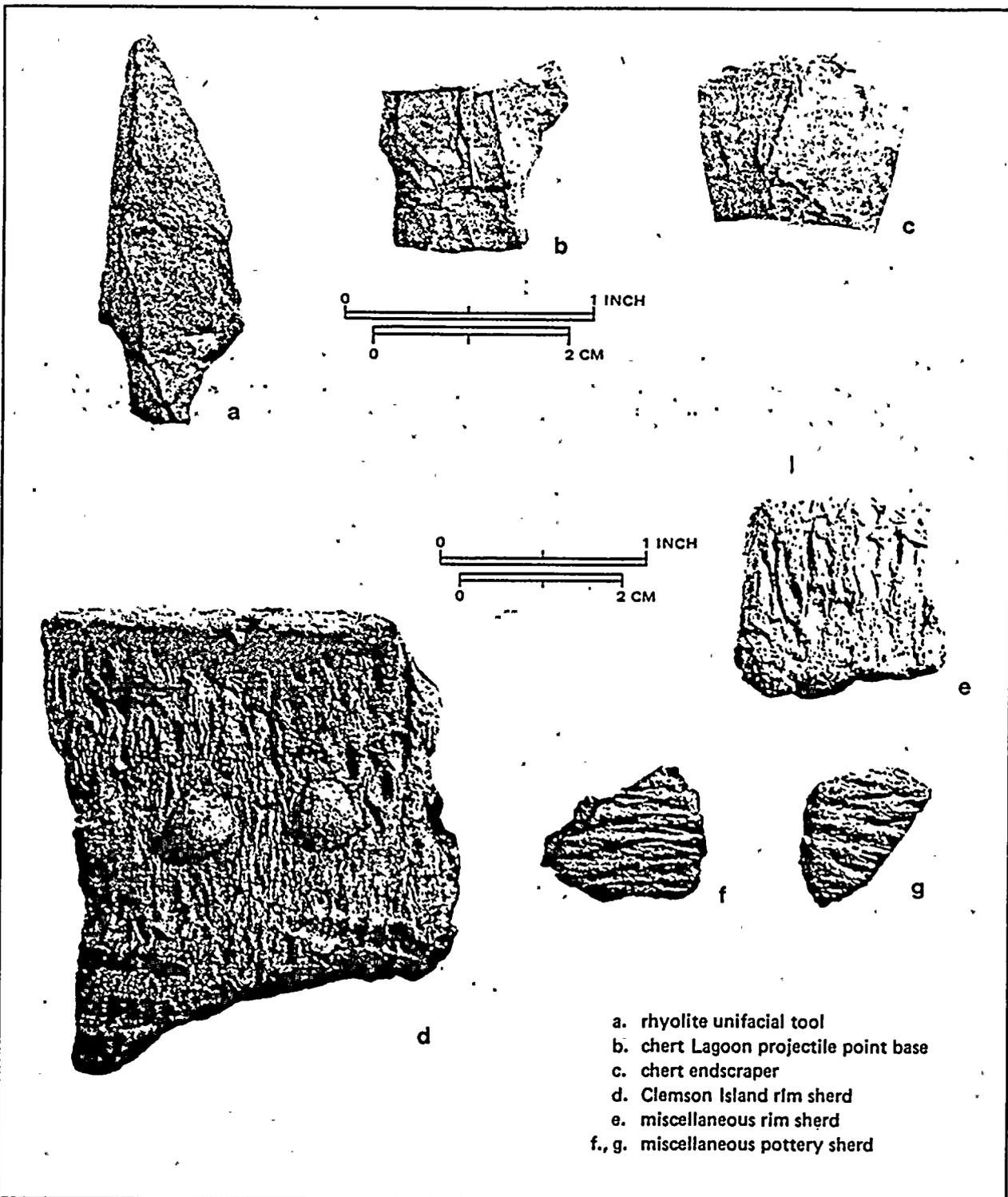


FIGURE 5  
 DETAILED SECTION - STT 6 (NORTH FACE)  
 SUSQUEHANNA S.E.S.  
 Archeological Investigations At The Susquehanna S.E.S. Floodplain



a. rhyolite unifacial tool  
 b. chert Lagoon projectile point base  
 c. chert endscraper  
 d. Clemson Island rim sherd  
 e. miscellaneous rim sherd  
 f., g. miscellaneous pottery sherd

PLATE I

ARTIFACTS: SES-6

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain



## 8. Significance

Period	Areas of Significance—Check and justify below			
<input checked="" type="checkbox"/> prehistoric	<input checked="" type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates 400-1000 AD Builder/Architect

Statement of Significance (in one paragraph)

SES-6 documents a critical prehistoric period along the Susquehanna floodplain. The Middle and Late Woodland are associated with widespread demographic shifts in the peopling of the eastern United States; since relatively little direct subsistence-settlement data has been synthesized for Pennsylvania over this period the presence of the diagnostic component at SES-6 in association with a natural stratigraphic unit provides a unique opportunity for examining the context of the prehistoric finds. Analogous sites in New York have provided evidence for deer, bear, waterfowl as well as fish, turtle, and mussel exploitation (Ritchie 1965), and the feature STT-6/C1 suggests that the small avian form encountered here may have been typical of small-game specialization that may have marked a turn in subsistence practices. Certainly the collective evidence from the SES-6 and STT-6 collections and profiles argues for extensive, as opposed to intensive, site utilization for this period, a trend noted by regional prehistorians. Through time, progressive stabilization of the diversified aquatic habitats along the Susquehanna as documented by sedimentological studies (Schuldenrein et al. 1981), would have resulted in the establishment of well-rooted subsistence strategies focusing on specialized hunting and gathering. SES-6, by dint of the three features identified during the testing phase, provides an opportunity for testing such hypotheses.

Analyses of raw materials utilized at SES-6 shows that along with probable resource specialization, the prehistoric peoples of the floodplain had mastered the use of several different stone types. Accordingly, it was shown that while Archaic peoples favored argillite exploitation, the later Woodland groups diversified and made extensive use of chert and jasper (Schuldenrein et al. 1981). The limited information gained from examination of the *in situ* prehistoric artifacts and sediments at SES-6 showed that the site is diagnostic of certain trends characteristic of the period:

1. The site sedimentary environment reflects the subsistence advantages afforded by a well differentiated but non-turbulent floodplain locale;
2. Raw material use indicates versatile technological expertise and efficiency practiced by peoples adapted to diversified but specialized subsistence modes;
3. The combined geoaerchological observations point to the optimal setting of Susquehanna floodplain for subsistence practices of later prehistoric people who focused on utilization of a variety of resources.

## 9. Major Bibliographical References

Kent, Barry C., Ira F. Smith, and Catherine McCann  
1971 Foundations of Pennsylvania Prehistory. Anthropological Series of the  
Pennsylvania Historical and Museum Commission No. 1.

## 10. Geographical Data

Acreage of nominated property 2 acres

Quadrangle name Berwick

Quadrangle scale 1:24,000

UMT References

A 

1	8	4	0	5	0	2	0	4	5	4	9	6	8	0
Zone	Easting				Northing									

B 

Zone	Easting				Northing									

C 

Zone	Easting				Northing									

D 

Zone	Easting				Northing									

E 

Zone	Easting				Northing									

F 

Zone	Easting				Northing									

G 

Zone	Easting				Northing									

H 

Zone	Easting				Northing									

Verbal boundary description and justification

See Description: Boundaries entry

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
-------	------	--------	------

state	code	county	code
-------	------	--------	------

## 11. Form Prepared By

name/title Joseph Schuldenrein

organization Commonwealth Associates Inc.

date 7/26/82

street & number 209 East Washington Avenue

telephone (517) 788-3561

city or town Jackson

state Michigan 49201

## 12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national  state  local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature

title

date

For HCERS use only

I hereby certify that this property is included in the National Register.

date

Keeper of the National Register

Attest:

date

Chief of Registration

United States Department of the Interior  
Heritage Conservation and Recreation Service

For HCRS use only

received

Date entered

National Register of Historic Places  
Inventory—Nomination Form

See Instructions in *How to Complete National Register Forms*  
Type all entries—complete applicable sections

**1. Name**

historic SES-8 and 36Lu49

and/or common Riverlands Recreation Area, Susquehanna Steam Electric Station, Site SES-8

**2. Location**

street & number R.D. 1, U.S. Route 11, Salem Township not for publication

city, town Berwick  vicinity of congressional district

state Pennsylvania code 42 county Luzerne code 079

**3. Classification**

<b>Category</b>	<b>Ownership</b>	<b>Status</b>	<b>Present Use</b>	
<input type="checkbox"/> district	<input type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input checked="" type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input checked="" type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
		<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

**4. Owner of Property**

name Pennsylvania Power and Light Co. Allegheny Electric Cooperative Inc.  
street & number 2 N. 9th Street P.O. 1266  
city, town Allentown, Pennsylvania 18101 Harrisburg,  
vicinity of state Pennsylvania 17108

**5. Location of Legal Description**

County Clerk  
courthouse, registry of deeds, etc. Luzerne County Courthouse

street & number North River Street

city, town Wilkes-Barre state Pennsylvania 18705

**6. Representation in Existing Surveys**

title Archeological Investigations at the Susquehanna Steam Electric Station, 1981 has this property been determined eligible?  yes  no

date \_\_\_\_\_ federal  state  county  local

depository for survey records William Penn Memorial Museum and Archives Building  
Box 1026

city, town Harrisburg state Pennsylvania

## 7. Description

<b>Condition</b>		<b>Check one</b>	<b>Check one</b>
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input checked="" type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

Describe the present and original (if known) physical appearance

### Context

#### a) General

SES-8 is one of four prehistoric sites judged to be significant in a systematic archeological and geoarcheological survey of the floodplain tract of the Susquehanna River. The work was undertaken by an archeological team from Commonwealth Associates Inc., Jackson, Michigan, for Pennsylvania Power and Light Company. Figure 1 illustrates the location and setting of the study area in east-central Pennsylvania. Fieldwork was undertaken by a four-man team for a six-week period running from June-mid-July, 1980. The field phase was followed up by analysis and write-up.

Field methods involved both surface walkover and shovel testing initially. Crew members transected the survey area spaced approximately 30 meters apart. In cultivated areas spacings were reduced to 10 m as visibility increased. In the shovel testing operation an approximate 30 cm test hole was dug every 30 m along the transects. The contents were then separated and thoroughly examined by trowelling for both cultural evidence and anomalies in soil composition.

Any locus of surface artifacts or subsurface shovel test finds located during the initial survey was flagged, noted on the regional map (see Figure 2), and given a preliminary "SES" site designation. Following the completion of the survey, each tentative site was more thoroughly investigated. Two methods were employed to determine its horizontal dimensions. These included either intensive surface survey where ground visibility was favorable, or systematic shovel testing at intervals along transects radiating from a datum stake which was arbitrarily planted within estimated site boundaries.

Site survey forms were completed as part of the investigation procedure. Noted on these forms were pertinent environmental factors concerning vegetation, topography, exposure, soils, drainage, slope and water source. Research procedures, site integrity, legal locations and general observations were also annotated.

Finally geoarcheological investigations conducted at the study areas were geared toward both reconstructing the succession of local prehistoric environments and identifying those sedimentary processes responsible for the natural and cultural sequences along the floodplain. As Figure 3 shows geoarcheological test trench locations are labelled "STT" and are placed at key archeological site (= SES) areas and along transects. Trenches were up to 3 m long and 2 m deep and were designed first, to outline the local alluvial succession paralleling the archeological succession and, second, to determine to what degree and intensity utilization of the floodplain by prehistoric groups could be documented.

#### b) Specific

The site has been designated 36Lu49 in the files of the Pennsylvania State Museum, but no major archeological recovery had been reported at the locale prior to the CAI investigations. The location was initially discovered as a light scatter of lithic and ceramic artifacts on the surface of a nearly level cornfield and it was noted in the preliminary assessment of archeological site potential at SES (April 1980). The diagnostic scatter was discovered at the edge of the field within 5 m of the treeline.



x  
v  
i  
a

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which delineates the levee and bank of the river. The area surrounding it was intensively inspected for additional artifacts and a slightly higher concentration of material was observed to be approximately 20 m (65.6 feet) west of the wooded levee. Controlled surface collection was then undertaken and was followed by a test excavation. No diagnostic artifacts were recovered from the test pit but the initial (i.e., uncontrolled) surface collection produced a jasper Madison point, a rhyolite Poplar Island point, a rhyolite Lamoka-like point; a Perkiomen scraper, an untyped chert fishtail-like point, a quartz-tempered cord-impressed sherd, and a kaolin pipe stem fragment. This collection of artifacts suggests occupation of the site from the Late Archaic through Historic periods (see Plate 1).

To test for site integrity and context a deep test excavation was also placed in the site. This test, labelled STT-9, encountered cultural materials at a depth of about 160 centimeters below the surface (see Figure 4) and yielded a feature comprised of many large pieces of concentrated fire-cracked rock. Field and stratigraphic relations suggest contemporaneity between the STT-9 feature and the artifact bearing stratum at SES-8. It is possible that both horizons are remnants of a former riverbank surface; SES-8 may have defined a surface of the former river levee and the deeper materials at STT-9 also describe an ancient river-edge setting. Regardless of the exact stratigraphic relationships, it is probable that the ample in situ cultural materials document a significant Transitional archeological component preserved at this site (see discussion below).

Two charcoal samples were taken from the fill of the feature. They have been dated to 3485 BP  $\pm$  95 (1535  $\pm$  95 BC; Beta-1799) and 3970  $\pm$  105 BP (2020  $\pm$  105 BC; Beta-1800). The former sample was determined to be in more pristine context.

Figure 3 shows the placement of test trenches (STT-7,8, and 9) along an east-west transect from the river's edge across the levee and up to the site proper. The placement was designed to provide a schematic cross-section of the subsurface stratigraphic relationships and, more significantly, to reveal the connection between artifact-bearing strata from the river's edge to the SES-8 site locale. Figure 4 shows the extended profiles and stratigraphic articulation of principal horizons across the floodplain. Figure 5 shows the disposition of the cultural feature at STT-8 which is most probably a hearth. Probing in the profile produced two argillite and one rhyolite flake and offered preliminary cultural affinities. The undisturbed eastern cut of the backhoe trench at STT-8 (shown in Figure 5) reveals the primary arche-sedimentary context and the carbonized material is clearly visible near the bottom of the profile. These conclusions stem from observations that the sediments sealing and underlying the cultural unit appeared to be naturally stratified and unintruded by any occupation horizon.

Subsequent sedimentological analyses verified that occupation occurred at a time when fine-grained deposition occurred along a slowly aggrading floodplain.

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The low-energy hydrological environment is consistent with a prehistoric occupation along the river at this time - the Transitional period - as documented by both radiometric determinations and the steatite-rich artifact assemblage. Collective investigations therefore revealed the existence of a multi-component site with a sealed Transitional period occupation..

Boundaries

Figure 3 traces the possible limits of the extended site incorporating the sealed (Transitional) as well as the later prehistoric (Woodland) and Historic components. Since precise radial limits of the buried horizons were not an objective of the initial testing phase, they could only be approximated on the basis of synthesis of the profiles as shown in Figure 4 and integration with the SES-8 site stratigraphy. It is not likely that the site extended west of SES-8 to the western ridge, nor did it run south to the SES-6 site edge. The 1.6 acre parcel shown in Figure 3 demarcates the maximum site limits.

Environment

SES-8 is located in the central portion of the SES floodplain. Soils are either well-drained silt loams or wetland silty-clays; the former are more prominent in this portion of the floodplain. The immediate site vicinity is agricultural land and corn is the principal crop. The SES floodplain itself is situated within the basin of the North Branch of the Susquehanna which follows a north-south course in the immediate vicinity before winding west and southwestward around Bell Bend and towards Berwick (Figure 1). It is strategically situated along the northern tract of Bell Bend, the juncture where the Susquehanna River bends sharply to the southwest after breaching the rimming mountains of the Pocono Plateau. The floodplain attains its maximum breadth along this tract - c. three-quarters of a mile (1.2 km) - and thins out dramatically along the western elbow of the Bend (see Figure 2). At that juncture it abuts steep-sided Woodfordian (late Pleistocene) frontal kames and outwash terraces. At SES the native floodplain vegetation features both open field and upland forest types. Recently PP&L ecologists identified a total of 568 plant species dominated by woody plants, ferns and cryptogams, and a large variety of flowering plants. The most prevalent families represented were Asteraceae, Graminae, and Rosaceae. Local vegetation has been subdivided into five community groups including River floodplain forest, upland forest, abandoned field, open marsh and pond and agricultural field (Jacobsen 1977 and refs). The SES-8 site vicinity was plowed and free of any vegetation cover at the time of survey.

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Archeological Investigations

As mentioned, fieldwork at SES-8 involved surface collection and deep test excavations at the site and at test trench STT-9. Three deep test backhoe trenches were investigated for geoarcheological purposes. Tables 1, 2, and 3 summarize the results of the recovery program.

The six collection units covered 59.2 square meters and produced a total of 62 artifacts. The greatest number of artifacts was recovered from the 025/03 collection unit (Table 1) and therefore the test excavation was placed in this area. A 2 x 1 m unit was staked and excavated. The results of this excavation are summarized in Table 2. Since no features were evident at the base of Level I, the test was reduced to a 1 x 1 unit and a second level was excavated in the north half. Artifact concentration diminished drastically below this level and two more levels produced insignificant results. Progressive reduction in artifact abundance and soil shallowness suggested periodic disturbance by semi-continuous plowing. The only diagnostic artifacts, proving the continuity of occupation from Late Archaic to Historic times came from the uncontrolled surface survey.

Transitional period artifacts were geologically sealed in a clay-silt matrix discovered in the course of backhoe trenching at STT-9. Once cultural materials and the feature were encountered excavation proceeded by hand. The artifacts recovered from the test are summarized in Table 3. Upon hand excavation of the bottom and sides of this trench it became evident that fire-cracked rock was associated with numerous flakes, charcoal and other artifacts. It was also evident that the strata were gently but distinctly sloping to the east. A considerable amount of fire-cracked rock was present and appeared to be piled in a small mound approximately 15-20 cm high and 70 cm in diameter.

Removal of the fire-cracked rock disclosed additional flakes and charcoal flecking. Approximately 10 cm below the base of the rock pile was a single steatite sherd. There was no soil staining to indicate a continuing or subsequent feature. The soils were sandy and light brown to yellow in color. No other artifacts were directly associated with the sherd although a flake was recovered within 5 cm of it. No artifacts were encountered below 210 cm and excavation was halted at a depth of 225 cm.

It was concluded that the artifact-bearing strata in this deep test were contemporaneous with those in the test pit at SES-8.

Some of the most informative results produced by the systematic investigations at the general SES-8 locality were geoarcheological. Each test trench

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revealed diagnostic trends in the prehistoric evolution of the floodplain. Beginning with the STT-7 profile along the levee, characteristic foreset and backset bedding planes of floodplain sands documented alternate depositions of particulate anthracite coal sand and light-brown quartz grain and micaceous sand beds. They verified a pattern of continuous bedload sedimentation that accounted for levee aggradation the length of the floodplain. The present configuration of the levees argues for a relatively stable channel geometry for the latter portion of the Holocene.

STT-8 and 9 were strategically placed within immediate proximity of one another - separated by only 12.2 meters - and in the same microenvironmental and geomorphological setting. The reasons for the spacing stemmed from the discovery of a 10 to 15 cm thick black and carbonized band in STT-8 at a depth of 3.2 meters. Closer examination of this band revealed the concentration of the Transitional period feature and associated artifacts as discussed earlier.

The sequence at STT-8 and 9 is chrono-stratigraphically the most carefully monitored in the length of the survey area. The detailed sedimentation pattern is recorded by grain-size analyses (Schuldenrein et al. 1981), which illustrate that all units are sandy clay-silts with almost identical textural breakdown by size grade. The immediate inference is that the pattern of deposition was virtually homogeneous for a protracted interval including the period of occupation. A gentle non-turbulent stream was depositing silts and clays, in a subdued ridge and swale setting, during the occupational periods.

Intrusions and Data Limitations

At an elevation of c. 170 m the site is 3 meters above and 60 meters west of the river. Though the diagnostic artifact scatter was initially found at the edge of the field (within 5 meters of the treeline) and at a levee-riverbank locale, the absence of features suggests that evidence for Woodland and later occupation was either minimal or has been removed by natural or cultural agency.

Deep testing at this site, however, disclosed the presence of cultural materials of the Transitional period, archeologically in situ and sealed, at a depth of approximately 1.5 m. This is a potentially critical site, as it may document a pivotal prehistoric period which is not very well understood by archeologists. Additionally, the deeply buried setting of the site suggests that materials may be well preserved and that the site may be defined in terms of the alluvial history of the floodplain. There are, however, no significant surface distributions of an archeological nature, so that since no major disturbances of the landscape are scheduled for this area, mitigation and intensive investigation

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of this site are not warranted.

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Schuldenrein, J. (compiler)

1981

Archeological Investigations at the Susquehanna Steam Electric  
Station. Report R-2282A, Commonwealth Associates Inc., Jackson,  
Michigan.

TABLE 1  
 CONTROLLED SURFACE COLLECTION RESULTS - SES-8

<u>Bearing</u>	<u>Distance</u>	<u>Retouched Flakes</u>	<u>Unmodified Flakes</u>	<u>Fire-Cracked Rock</u>	<u>Pebble Tools</u>
025	03	1	8	23	1
146	34	0	1	0	0
000	00	0	6	10	0
283	33	0	0	3	0
069	18	0	1	13	0
089	19	0	0	5	0



TABLE 2

## TEST EXCAVATION SUMMARY - SES-8

<u>Level</u>	<u>Depth (cm)</u>	<u>Dimensions (m)</u>	<u>Soil Color</u>	<u>Biface</u>	<u>Utilized/ Retouched Flakes</u>	<u>Unmodified Flakes</u>	<u>Fire- Cracked Rock</u>
I	0-26	1x2	10YR4/3	1	2	92	7
II	26-36	1x1	10YR3/2- 10YR4/1	0	1	10	3
III	36-46	1x1	10YR4/1	0	0	0	0
IV	46-56	1x.5	-	0	0	0	0

TABLE 3

## DEEP TEST EXCAVATION SUMMARY - SES-8 (STT-9)

<u>Level</u>	<u>Depth (cm)</u>	<u>Dimensions (m)</u>	<u>Steatite</u>	<u>Uniface Tool</u>	<u>Utilized/ Retouched Flakes</u>	<u>Unmodified Flakes</u>	<u>Fire- Cracked Rock</u>	<u>Charcoal</u>
I	0-100	2x1	0	0	0	0	0	0
II	100-160	2x1	0	0	0	0	+	+
III	160-195	2x1	0	2	5	15	59	0
IV	195-215	1x1	1	0	1	0	0	0
V	215-225	.5x.5	0	0	0	0	0	0

Note: + = trace

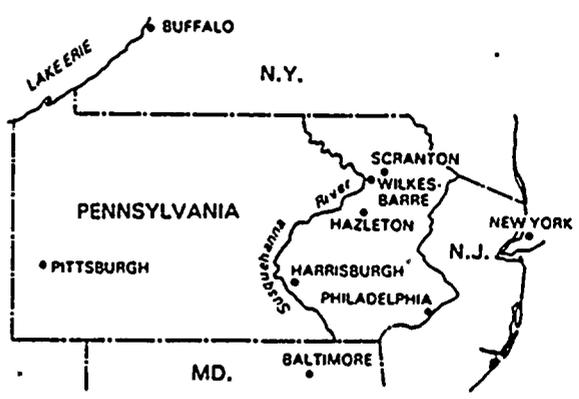
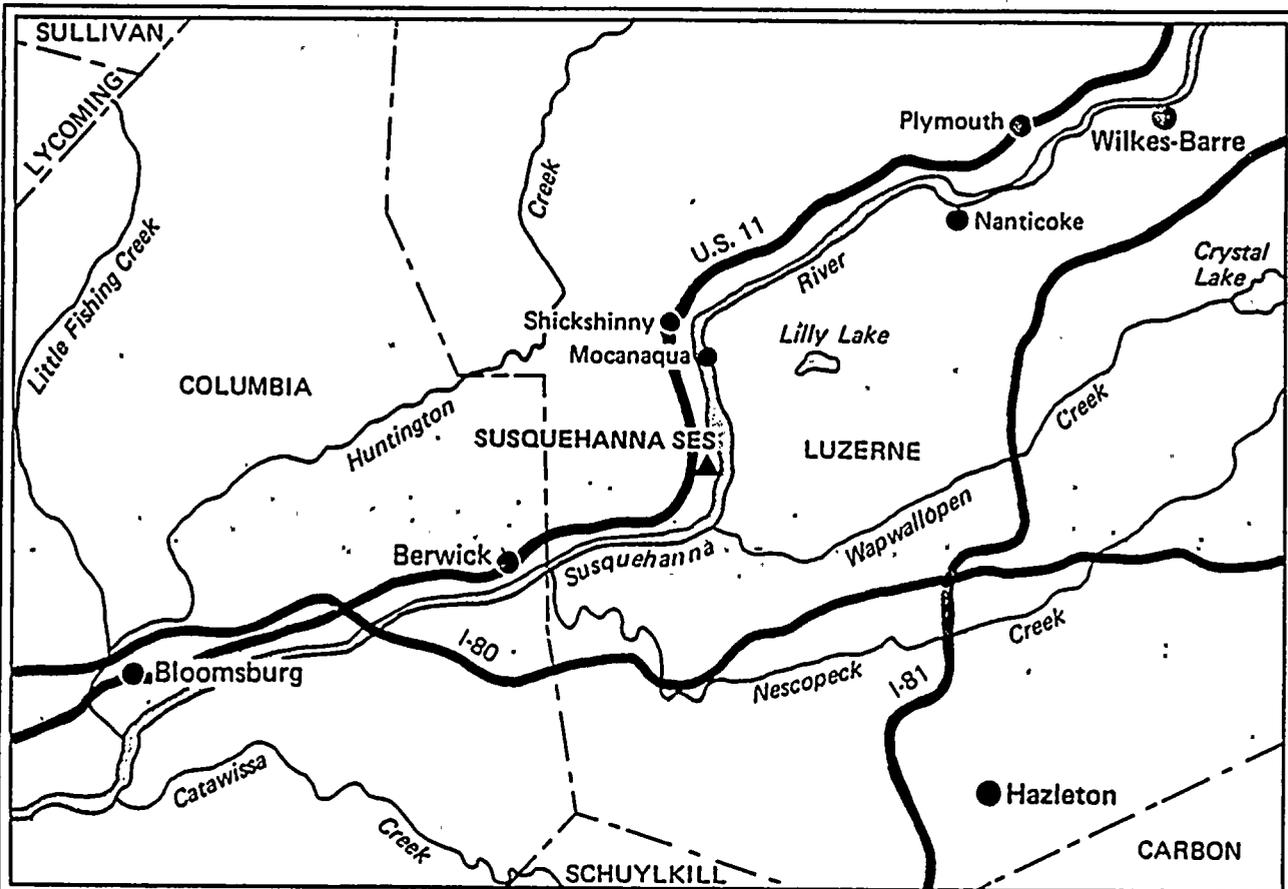
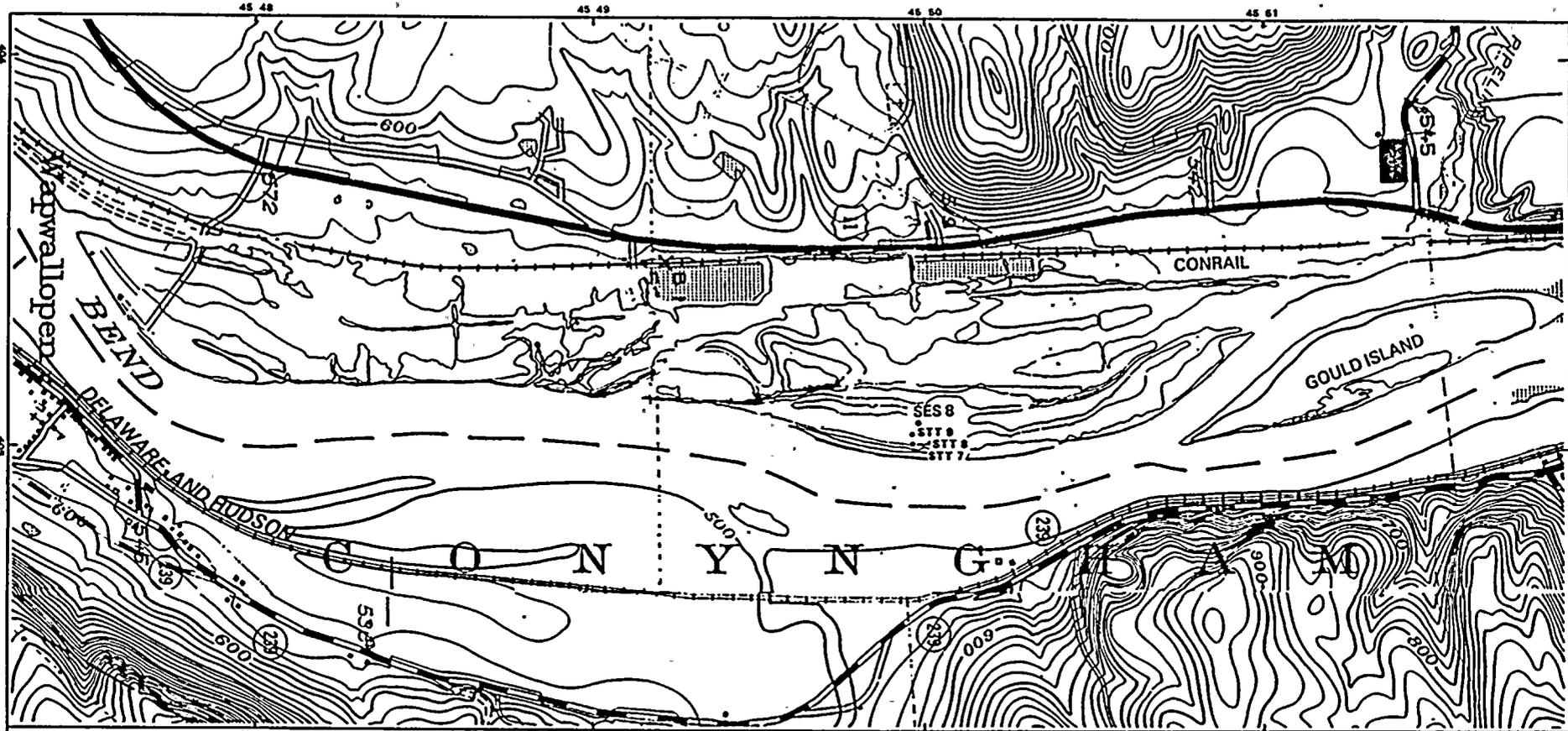


FIGURE 1  
 LOCATION OF SUSQUEHANNA SES SITE IN PENNSYLVANIA  
 SUSQUEHANNA S.E.S.  
 Archeological Investigations At The Pond Hill Reservoir Site





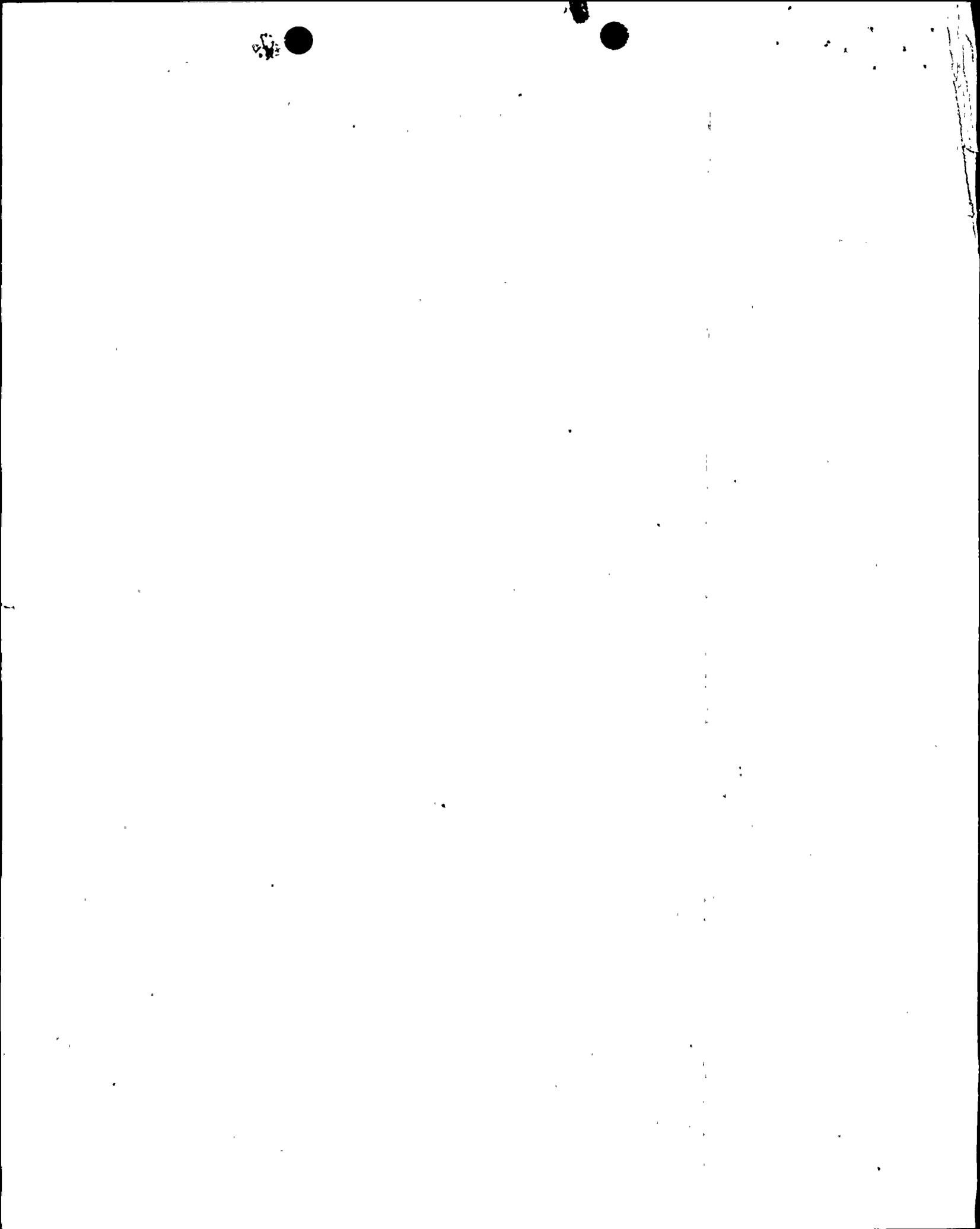
Berwick Quadrangle  
7.5 Minute Series

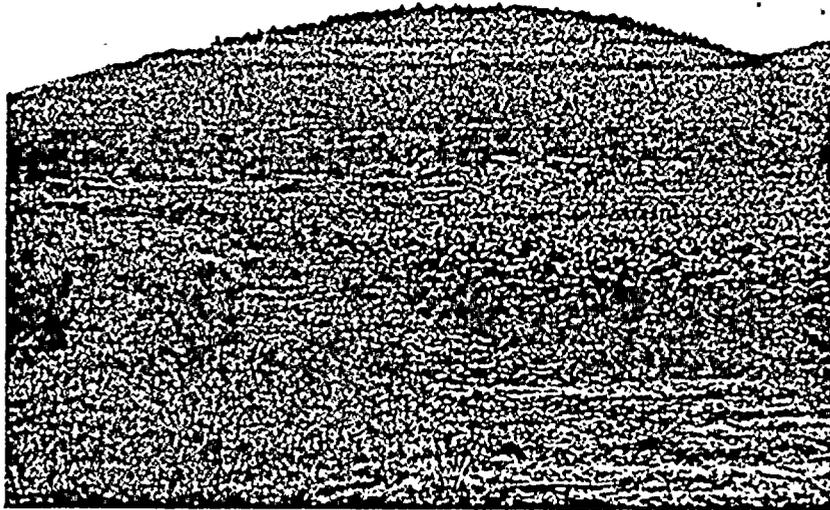


• GEORCHEOLOGICAL TEST TRENCHES  
• EXCAVATION UNITS

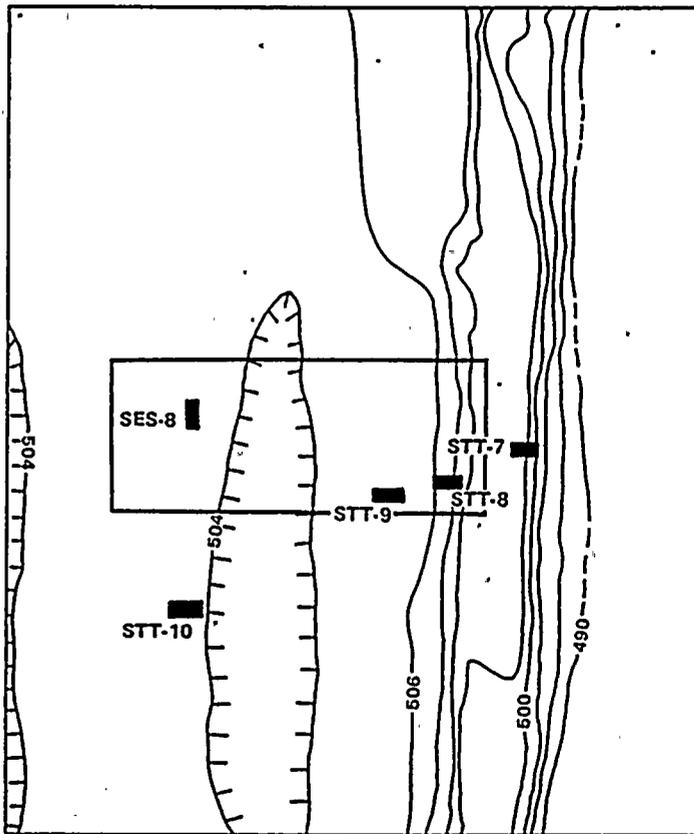
UMT References  
18 404 970 45 49 910  
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**FIGURE 2**  
**SES 8**  
**DEEP TEST TRENCHES, AND**  
**ARCHEOLOGICAL LOCALITIES**  
**ALONG THE SUSQUEHANNA**  
**S.E.S. FLOODPLAIN**  
  
**SUSQUEHANNA S.E.S.**  
**Archeological Investigations**  
**At The Susquehanna**  
**S.E.S. Floodplain**





a. Susquehanna River Floodplain at SES-8, facing west, Archeologist is screening at excavation unit in background



b. SES-8 topographic and spatial map showing location of excavation units and deep test trenches

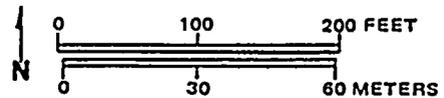


FIGURE 3

SES-8 SURVEY, EXCAVATION AND GEO-ARCHEOLOGICAL TESTING AREA

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain



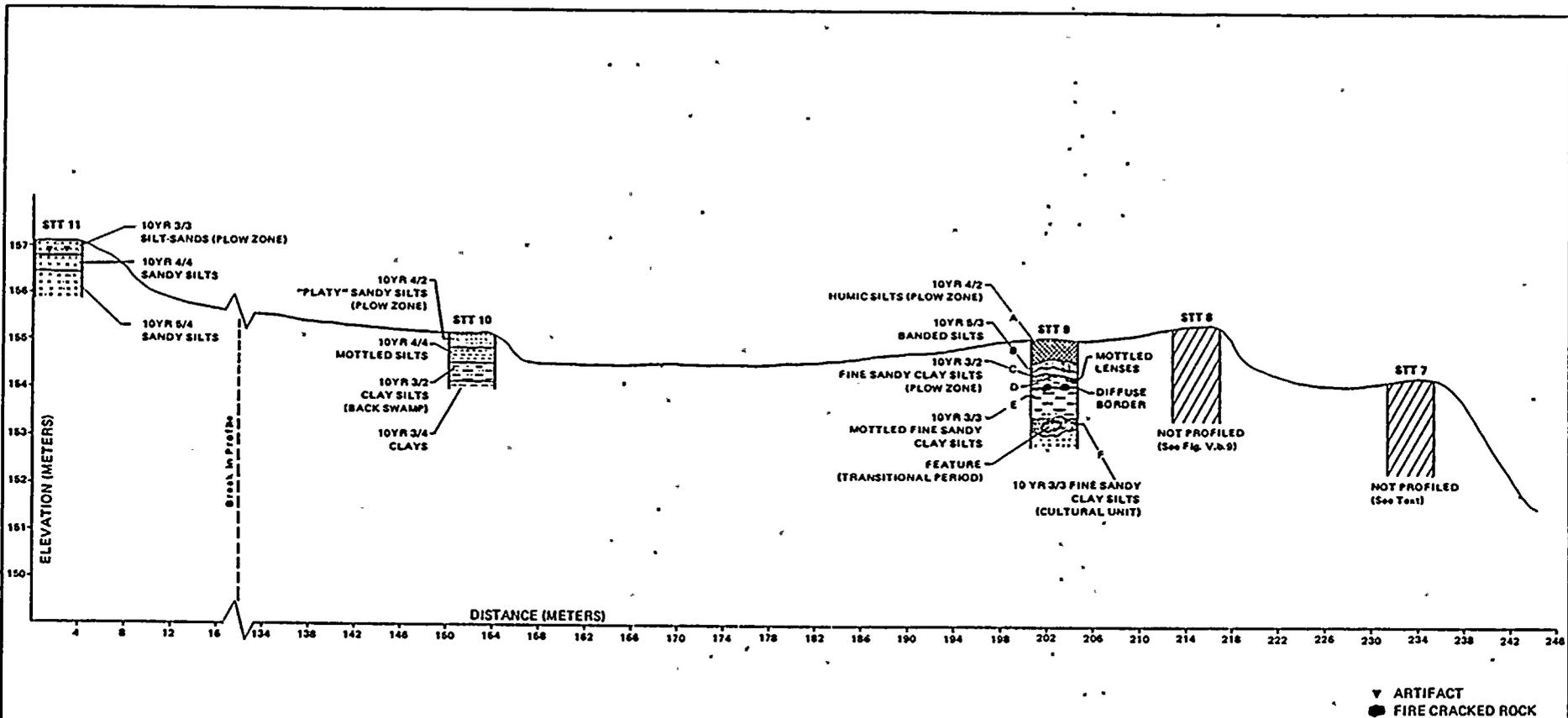


FIGURE 4

TRANSECT ACROSS CENTRAL AREA  
STT 7 • STT 8 • STT 9 • STT 10 • STT 11

SUSQUEHANNA S.E.S.  
Archeological Investigations  
At The Susquehanna  
S.E.S. Floodplain



- ◀ a. Carbonized horizon at depth of 3.2M in trench.
- b. Close up of carbonized horizon showing charcoal fragments and argillite flakes.

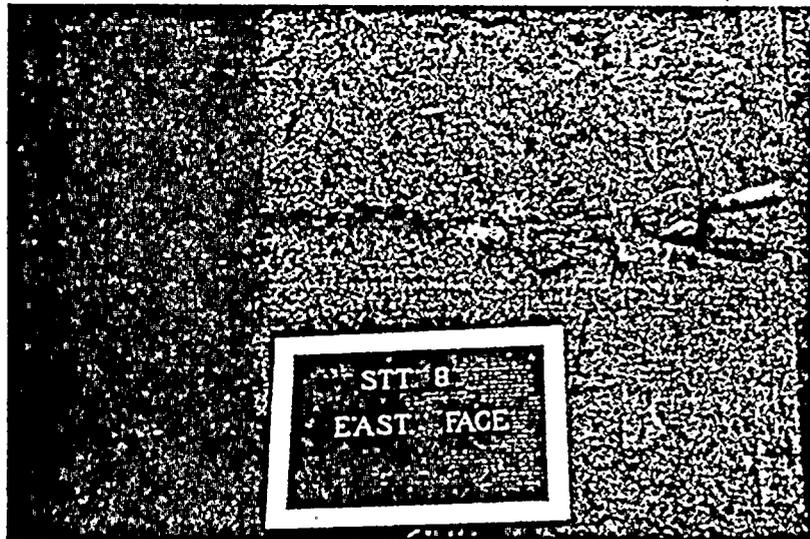


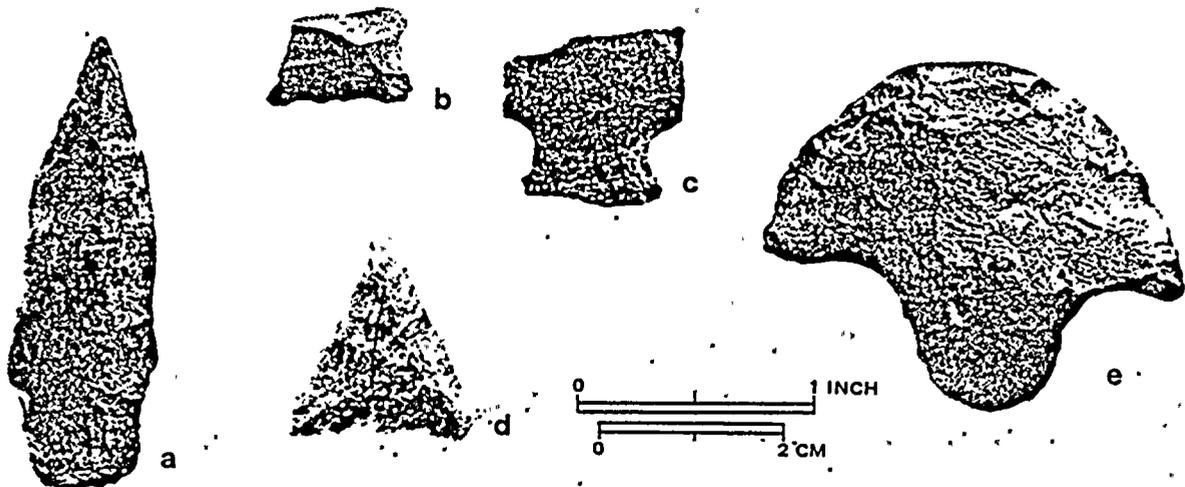
FIGURE 5

DEEP TEST STT-8 EAST FACE

SUSQUEHANNA S.E.S.

Archeological Investigations At. The Susquehanna S.E.S. Floodplain





- a. rhyolite Lamoka-like projectile point
- b. chert Fishtail-like projectile point base
- c. rhyolite Poplar Island projectile point base
- d. jasper Madison projectile point
- e. rhyolite Perkiomen scraper
- f. steatite pot sherd

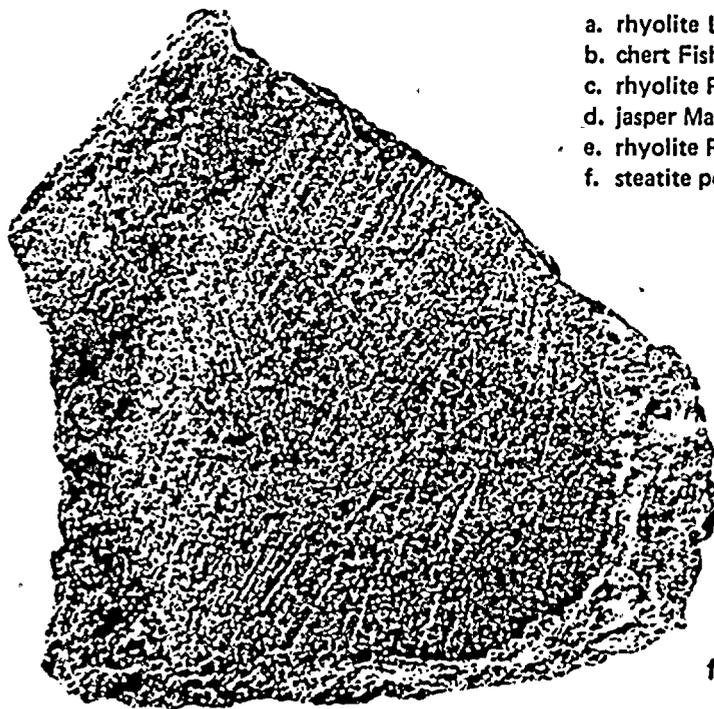


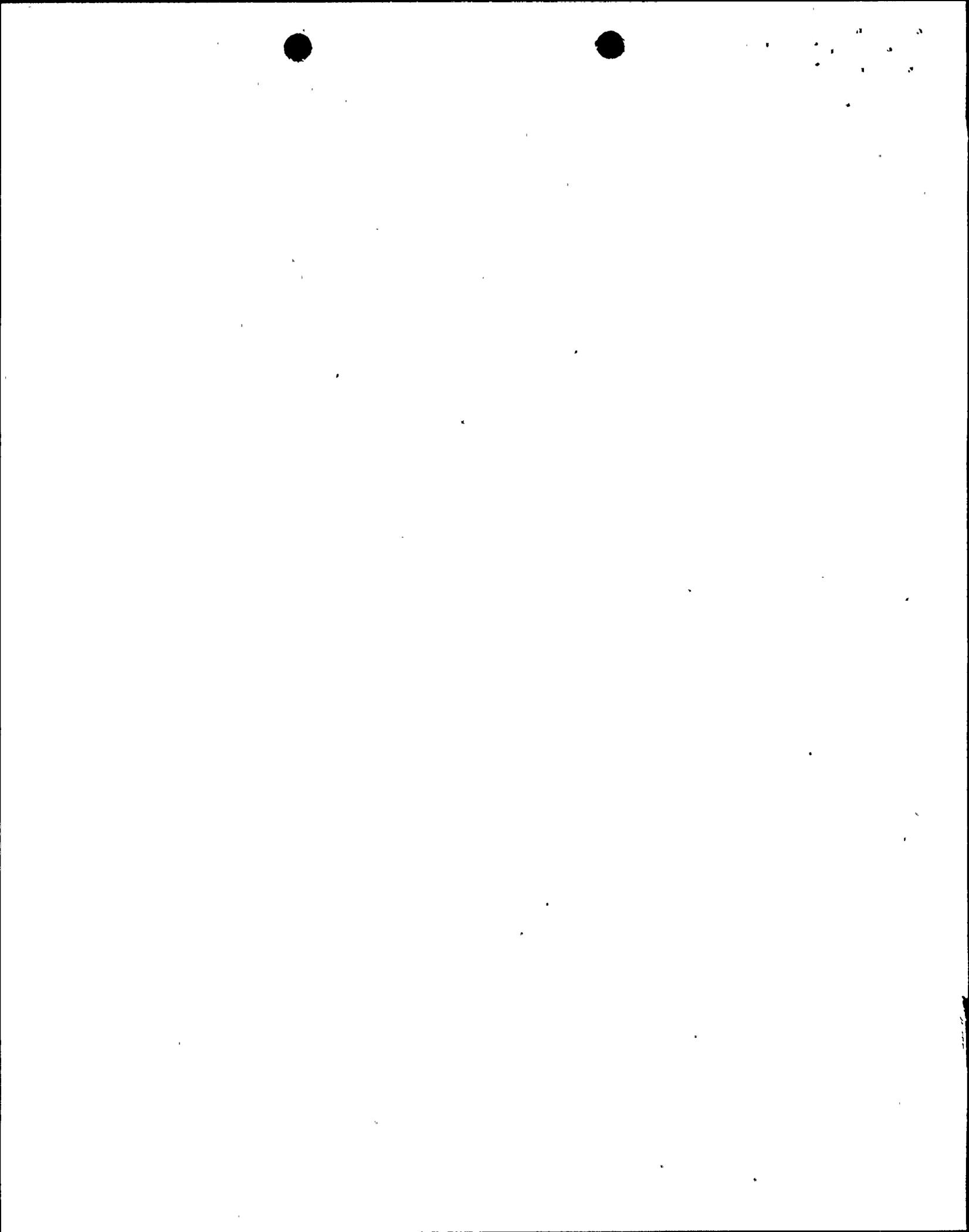
PLATE I

ARTIFACTS: SES-8

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain





## 8. Significance

Period	Areas of Significance—Check and justify below			
<input checked="" type="checkbox"/> prehistoric	<input checked="" type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/ humanitarian
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> theater
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> transportation
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> other (specify)
		<input type="checkbox"/> invention		

Specific dates 800 BC - Present Builder/Architect

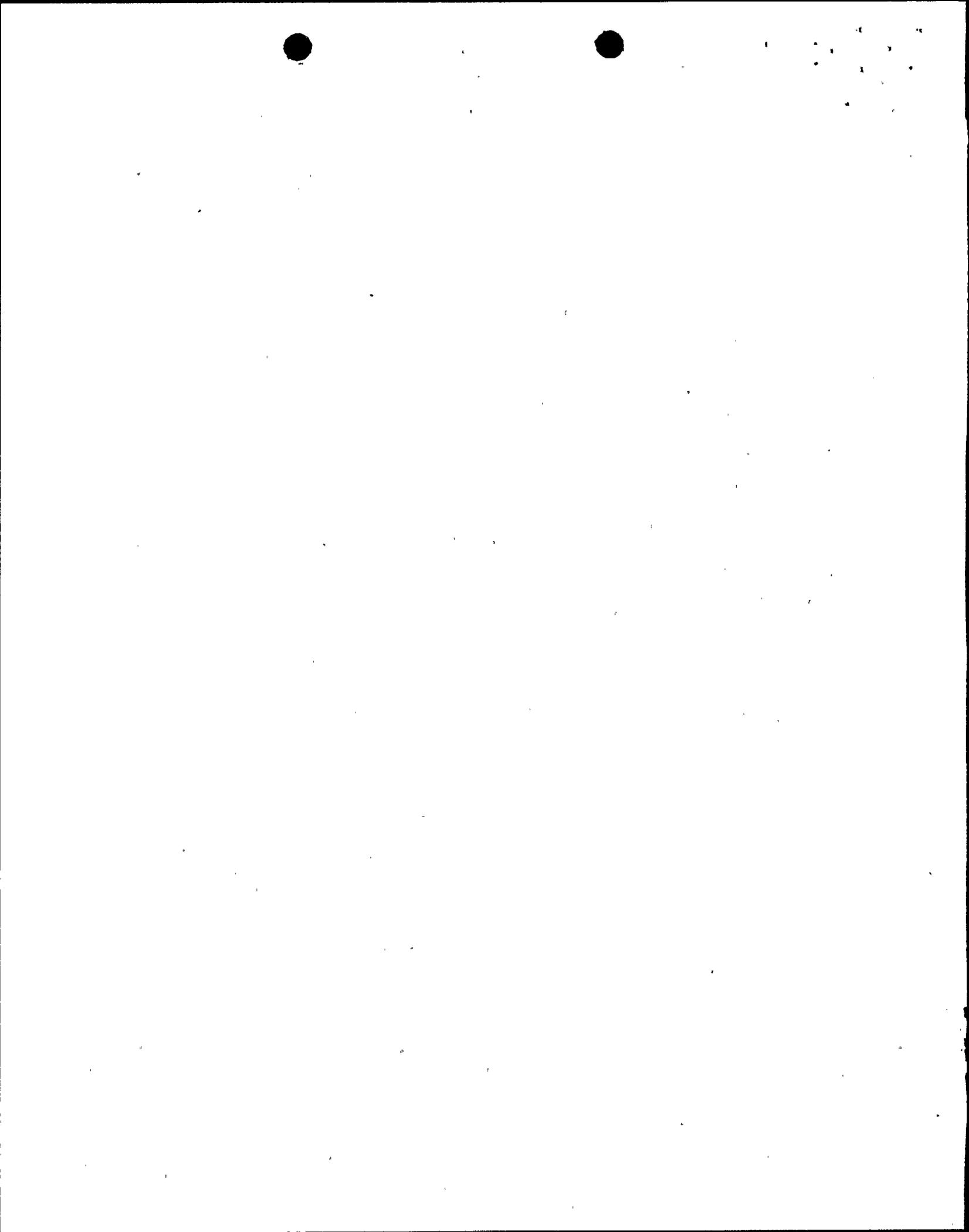
### Statement of Significance (In one paragraph)

The significance of SES-8 lies in the fact that its setting was optimal for Late Archaic and Transitional period prehistoric utilization. Evidence for later prehistoric utilization of the locale has been largely obliterated but the general geomorphic setting that prevailed since the times of the earliest (i.e.; Late Archaic) floodplain occupation has been outlined by the geoarcheological analyses. These showed that the cultural deposits are associated with floodplain sediments - largely clays and silts - deposited by a gentle, slow moving, and incrementally aggrading floodplain. Studies of contemporaneous and analogous settings in the eastern United States including Shawnee Minisink, a multi-component prehistoric site only 60 miles east of Susquehanna, illustrate that by 4000 BP active channeling and levee sedimentation along the Susquehanna had ceased and aquatic settings had stabilized to the degree that essentially modern biomes took hold and defined longer-term resource zones. The Late Archaic/Transitional period population expansion is traceable to the spread of these increasingly attractive riverine settings.

Analyses of raw material types utilized at the Transitional site of SES-8 shows that rhyolite was the dominant manufacturing stone for tool production at the site with abundant quantities of chert and less argillite. Examination of raw material distributions along the Susquehanna floodplain survey tract showed that the individual prehistoric periods could be differentiated on that basis as well as on typological grounds (Schuldenrein et al. 1981). Consequently, it was inferred that the key archeological component represented at SES-8 was that of the Transitional period and its buried context provides secure evidence for primary exploitation of the rich aquatic habitat at that time. The sealed setting of the occupation offers optimal potential for outlining diagnostic prehistoric features. Accordingly:

1. The site sedimentary environment could be identified by stratigraphic methods and equivalent depositional units across the local floodplain could be correlated and linked with the post-Late Archaic occupational loci;
2. Analyses of raw material use proved to be a diagnostic indicator for classifying the site as a Transitional settlement;
3. Synthesis of previous reports with the present data recovered points to an extensive occupation along a key stretch of the Susquehanna River after the Late Archaic and prior to Woodland times.

Similar archeo-sedimentary settings, raw material distributions, and site utilization traits may provide diagnostic and predictive lacunae for the location of later prehistoric sites in future River surveys.



## 9. Major Bibliographical References

Kent, Barry C., Ira F. Smith, and Catherine McCann  
1971 Foundations of Pennsylvania Prehistory. Anthropological Series  
of the Pennsylvania Historical and Museum Commission No. 1.

## 10. Geographical Data

Acreeage of nominated property 1.6 acres

Quadrangle name Berwick

Quadrangle scale 1:24,000

### UMT References

A 

1	8	4	0	4	9	7	0	4	5	4	9	9	1	0
Zone		Easting				Northing								

B 

Zone		Easting				Northing								

C 

Zone		Easting				Northing								

D 

Zone		Easting				Northing								

E 

Zone		Easting				Northing								

F 

Zone		Easting				Northing								

G 

Zone		Easting				Northing								

H 

Zone		Easting				Northing								

### Verbal boundary description and justification

See Description: Boundaries entry

### List all states and counties for properties overlapping state or county boundaries

state	code	county	code
-------	------	--------	------

state	code	county	code
-------	------	--------	------

## 11. Form Prepared By

name/title Joseph Schuldenrein

organization Commonwealth Associates Inc.

date 7/26/82

street & number 209 East Washington Avenue

telephone (517) 788-3561

city or town Jackson

state Michigan 49201

## 12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national  state  local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature

title \_\_\_\_\_ date \_\_\_\_\_

**For HCPS use only**  
I hereby certify that this property is included in the National Register.

date \_\_\_\_\_

Keeper of the National Register

date \_\_\_\_\_

Chief of Registration

For HCPS use only

received

data entered

**United States Department of the Interior  
Heritage Conservation and Recreation Service**

**National Register of Historic Places  
Inventory—Nomination Form**

See instructions in *How to Complete National Register Forms*  
Type all entries—complete applicable sections

**1. Name**

historic SES-11 and 36Lu51

and/or common Riverlands Recreation Area Susquehanna Steam Electric Station, Site SES-11

**2. Location**

street & number R.D. 1, U.S. Route 11, Salem Township not for publication

city, town Berwick  vicinity of congressional district

state Pennsylvania code 42 county Luzerne code 079

**3. Classification**

Category	Ownership	Status	Present Use	
<input type="checkbox"/> district	<input type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input checked="" type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input checked="" type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
		<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

**4. Owner of Property**

name Pennsylvania Power and Light Company Allegheny Electric Cooperative Inc.

street & number 2 N. 9th Street P.O. 1266

city, town Allentown, Pennsylvania 18101 vicinity of Harrisburg, Pennsylvania 17108

**5. Location of Legal Description**

courthouse, registry of deeds, etc. County Clerk: Luzerne County Courthouse

street & number North River Street

city, town Wilkes-Barre state Pennsylvania 18705

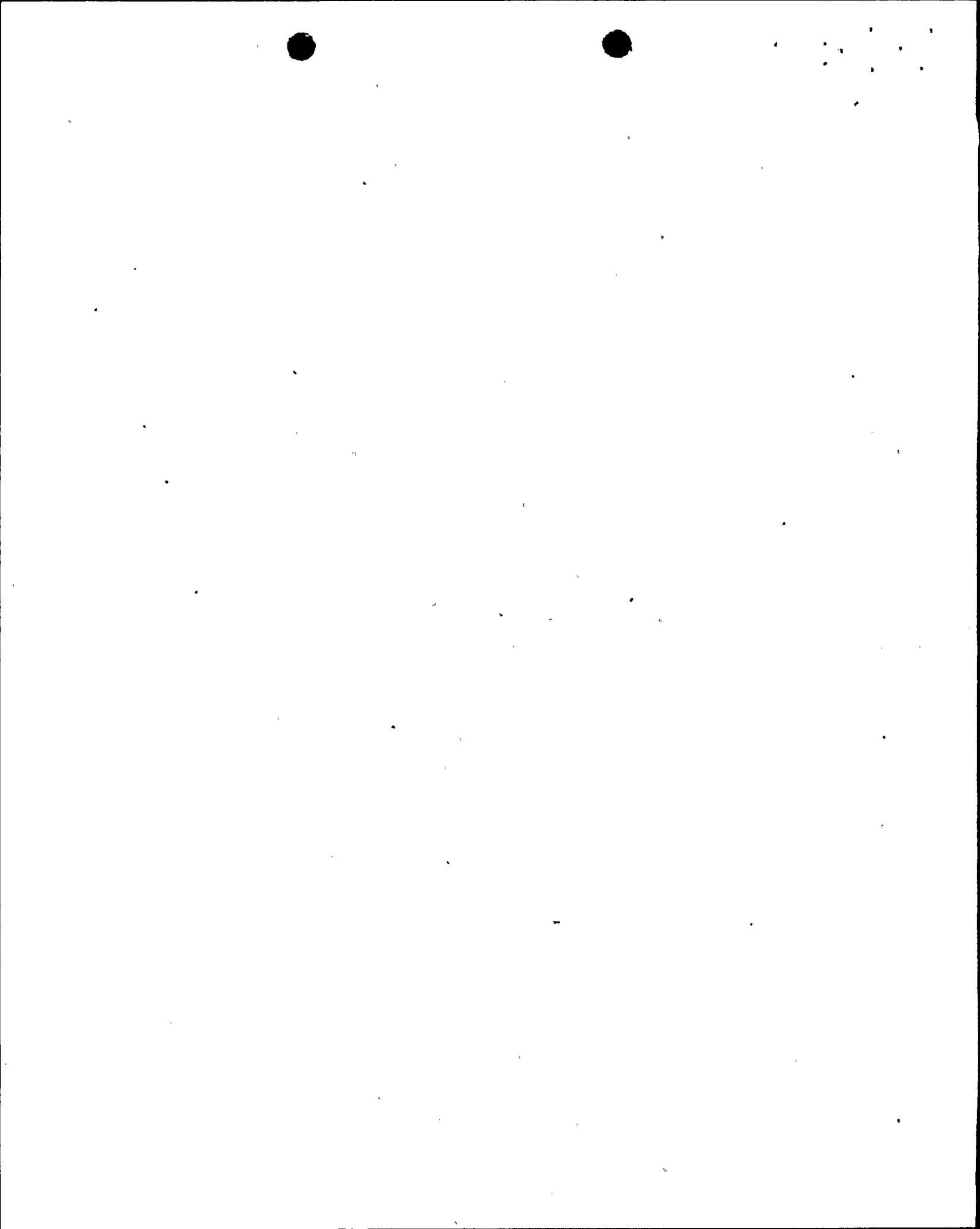
**6. Representation in Existing Surveys**

title Archeological Investigations at the Susquehanna Steam Electric Station, 1981 has this property been determined eligible?  yes  no

date  federal  state  county  local

depository for survey records William Penn Memorial Museum and Archives Building Box 1026

city, town Harrisburg state Pennsylvania



## 7. Description

Condition		Check one	Check one
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input checked="" type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

Describe the present and original (if known) physical appearance

### Context

#### a) General

SES-11 is one of four prehistoric sites judged to be significant in a systematic archeological and geoarcheological survey of the floodplain tract of the Susquehanna River. The work was undertaken by an archeological team from Commonwealth Associates Inc., Jackson, Michigan, for Pennsylvania Power and Light Company. Figure 1 illustrates the location and setting of the study area in east-central Pennsylvania. Fieldwork was undertaken by a four-man team for a six-week period running from June-mid-July, 1980. The field phase was followed up by analysis and write-up.

Field methods involved both surface walkover and shovel testing initially. Crew members transected the survey area spaced approximately 30 meters apart. In cultivated areas spacings were reduced to 10 m as visibility increased. In the shovel testing operation an approximate 30 cm<sup>3</sup> test hole was dug every 30 meters along the transects. The contents were then separated and thoroughly examined by trowelling for both cultural evidence and anomalies in soil composition.

Any locus of surface artifacts or subsurface shovel test finds located during the initial survey was flagged, noted on the regional map (see Figure 2), and given a preliminary "SES" site designation. Following the completion of the survey, each tentative site was more thoroughly investigated. Two methods were employed to determine its horizontal dimensions. These included either intensive surface survey where ground visibility was favorable, or systematic shovel testing at intervals along transects radiating from a datum stake which was arbitrarily planted within estimated site boundaries.

Site survey forms were completed as part of the investigation procedure. Noted on these forms were pertinent environmental factors concerning vegetation, topography, exposure, soils, drainage, slope and water source. Research procedures, site integrity, legal locations and general observations were also annotated.

Finally, geoarcheological investigations conducted at the study areas were geared toward both reconstructing the succession of local prehistoric environments and identifying those sedimentary processes responsible for the natural and cultural sequences along the floodplain. Geoarcheological test trench locations were labelled "STT" and were placed at key archeological site (= SES) areas and along transects. Trenches were up to 3 m long and 2 m deep and were designed first, to outline the local alluvial succession paralleling the archeological succession and, second, to determine to what degree and intensity utilization of the floodplain by prehistoric groups could be documented.

#### b) Specific

The site is listed as 36Lu51 by the Pennsylvania State Museum but had not been investigated prior to the CAI investigations. During the testing of the northern

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CONTINUATION SHEET

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SES floodplain, the site was discovered over the course of the walkover survey. It is situated in a cornfield at the right descending bank of the Susquehanna River (Figure 2). A light scatter of ceramic and lithic artifacts was observed both along the eastern edge of the cornfield and in an unplanted area between the corn and the treeline which corresponds to the natural levee bordering the river. The field in which these artifacts were observed is a nearly level area approximately 5 m above the river with an elevation of between 154.5 to 156 m AMSL. During this investigation a small surface collection of artifacts was made. Subsequent to the grab collection a controlled surface collection was taken.

On the basis of the surface data and the occurrence of fire-cracked rock in the southeast corner of the plow zone in the nearby deep test (trench STT-16), a 1 x 1 m test excavation unit was placed in the center of the apparent concentration of artifacts. Five excavation levels produced limited numbers of artifacts and field and stratigraphic relations suggested that levels II and III (28 to 48 cm) may document former occupation horizons. By 98 cm depth the test pit proved to be sterile and the excavation was terminated.

The total number of artifacts recovered was rather small, but materials from the test excavation reveal that in situ cultural materials do remain at the site. These appear to be limited to a relatively small area and are not associated with midden deposits. The presence of plain surface quartz tempered sherds, and the Late Woodland Madison point would argue for assignment of the site to at least a Late Woodland cultural affiliation (see Plate 1).

Geoaarcheological test trench STT-16 provided stratigraphic evidence for a high energy depositional suite that featured rapid accumulations of poorly sorted silty and clayey sands. A representative profile at STT-16 presented clearly differentiated stratigraphic units each indicative of episodic and relatively turbulent inundations (Schuldenrein et al. 1981). Collective evidence points to a high energy fluvial environment for the present as well as the past in the northern SES floodplain.

Boundaries

On the basis of the survey and testing the site measures 100 feet east-west by 150 feet north-south and covers an area of approximately .4 acres.



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Environment

SES-11 is located in the northern area which extends from the central portion of the SES floodplain around the northern meander, and ends at the northernmost limit of PP&L's property. Topographically the tract reveals the same subdued ridge and swale relief noted for the central area. Soils are well-drained silt-loams that are under cultivation. The SES floodplain itself lies within the Basin of the North Branch of the Susquehanna which follows a north-south course in the immediate vicinity before winding west and southwestward around Bell Bend and towards Berwick (Figure 1). It is strategically situated along the northern tract of Bell Bend, the juncture where the Susquehanna River bends sharply to the southwest after breaching the rimming mountains of the Pocono Plateau. The floodplain attains its maximum breadth along this tract - c. three-quarters of a mile (1.2 km) - and thins out dramatically along the western elbow of the Bend (see Figure 2). At that juncture it abuts steep-sided Woodfordian (late Pleistocene) frontal kames and outwash terraces. At SES the native floodplain vegetation features both open field and upland forest types. Recently PP&L ecologists identified a total of 568 plant species dominated by woody plants, ferns and cryptogams, and a large variety of flowering plants. The most prevalent families represented were Asteraceae, Graminae, and Rosaceae. Local vegetation has been subdivided into five community groups including River floodplain forest, upland forest, abandoned field, open marsh and pond and agricultural field (Jacobsen 1977 and refs). At SES-11 most of the land is agricultural and was in crop (potatoes and corn) at the time of the study.

Archeological Investigations

Fieldwork at SES-11 involved surface collection, test excavation at the site and backhoe trenching at STT-16. Initially the surface area was intensively surveyed and the boundaries of the scatter were determined and flagged. Six collection units were placed within the site area and the locations of these units and contents of the collections are summarized in Table 1. The four artifactually sterile units suggested this site was a very tightly clustered center (approximately 15 x 15 m) with an associated cultural scatter produced by agricultural disturbance. The test excavation was placed in the center and the results are summarized in Table 2. Excavation of the test unit proceeded with removal of the plow zone as one level. At the relatively shallow depth of 28 cm the plow zone ended and a more compact sandy loam was encountered. Within Level II (28 to 38 cm) a number of unmodified cobbles and fire-cracked rocks were discovered and left in situ temporarily. Artifacts continued into Level III (38 to 48 cm) and are considered to represent a former occupation. There was no soil color or

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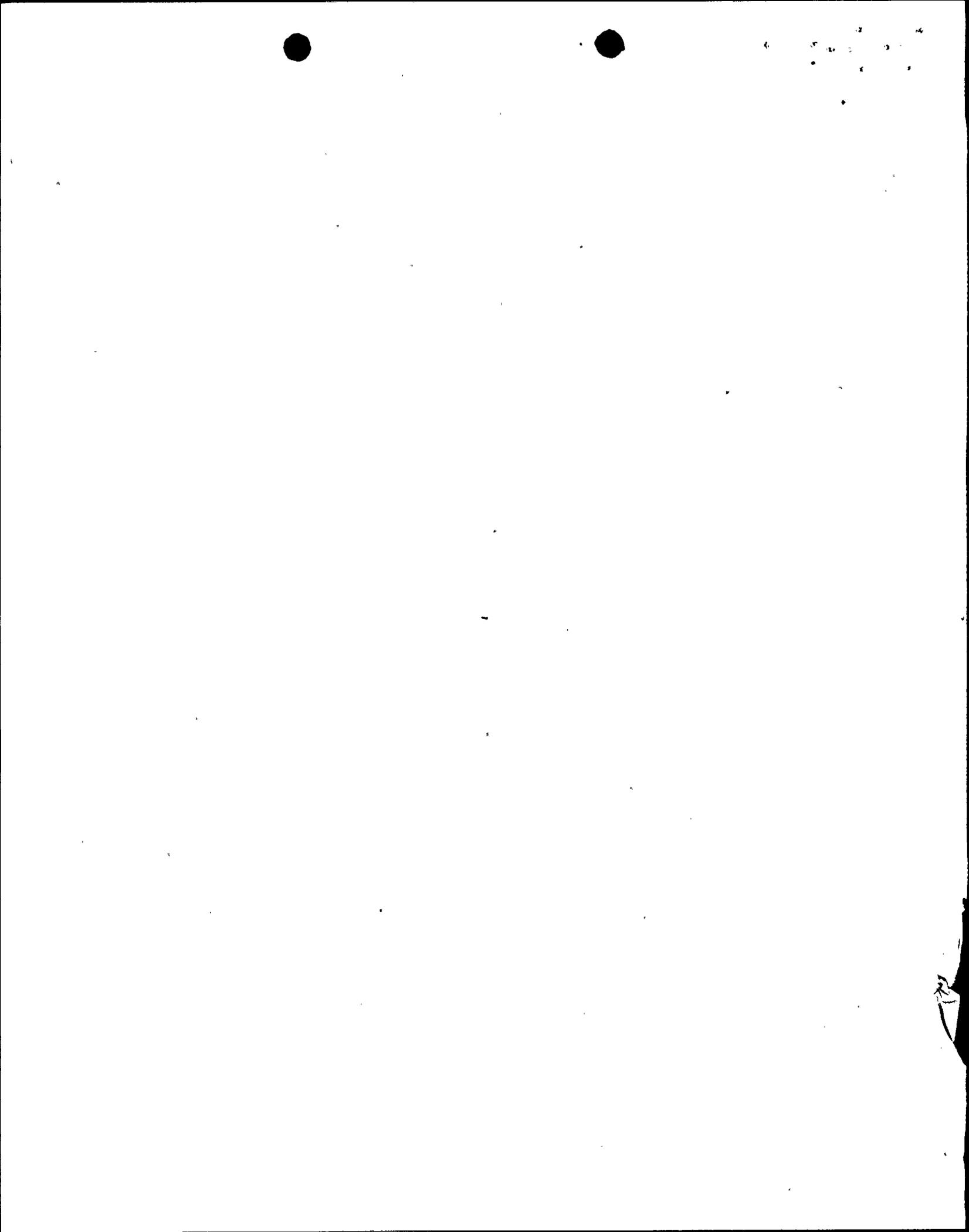
PAGE 4

texture change in Levels II and III, although there was a scatter of charcoal flecks associated with the artifacts. There were no other directly associated artifacts. Because of the reduced number of artifacts within Level III, the excavation unit was limited to the northern half of the unit and excavated an additional two levels. With the recovery of only three flakes in the fourth and fifth levels, a smaller unit was excavated in the northeast corner. It proved to be sterile to a depth of 98 cm, and the excavation was terminated at this depth. At Site SES-11 diagnostic artifacts were all recovered from the 15 x 15 m concentration at the center of the site.

Geoarcheological test trench STT-16 documented the sedimentation pattern along the riverbank at the point of inflection of the meander swing to the southwest. Sedimentation patterns at this critical juncture reflected the complex dynamics of channel adjustment to changing hydrological budgets. The sharp and abrupt stratigraphic contacts pointed to sedimentary origins that are also widely removed from one another and their implications are discussed below.

Intrusions and Data Limitations

Excavations suggested that a Woodland-period occupation occurred at this site but archeological materials could not be tied to a clearly defined stratum. Nevertheless, materials were found below the surface and plow zone and offered the potential for site preservation. At this stage the total recovery of materials is not sufficient to undertake a systematic search for features, but the site should be considered a significant resource.



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3. The combined geoaarcheological observations point to the optimal setting of Susquehanna floodplain for subsistence practices of later prehistoric peoples who focused on utilization of a variety of resources.

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Ritchie, William A.

1965

The Archaeology of New York State. Natural History Press: New York.

Schuldenrein, J. (compiler)

1981

Archeological Investigations at the Susquehanna Steam Electric Station. Report R-2282A, Commonwealth Associates Inc., Jackson, Michigan.

TABLE 1  
 SURFACE COLLECTION RESULTS - SES-11.

<u>Bearing</u>	<u>Distance</u>	<u>Ceramics</u>	<u>Projectile Points</u>	<u>Uniface Scrapers</u>	<u>Unmodified Flakes</u>	<u>Hammerstones</u>	<u>Ground Stone Tools</u>
GENERAL SURFACE		4	1	0	8	0	1
005	25	0	0	0	0	0	0
028	32	0	0	0	0	0	0
017	23	0	0	0	17	1	0
350	30	0	0	1	0	0	0
045	18	0	0	0	0	0	0
030	11	0	0	0	0	0	0

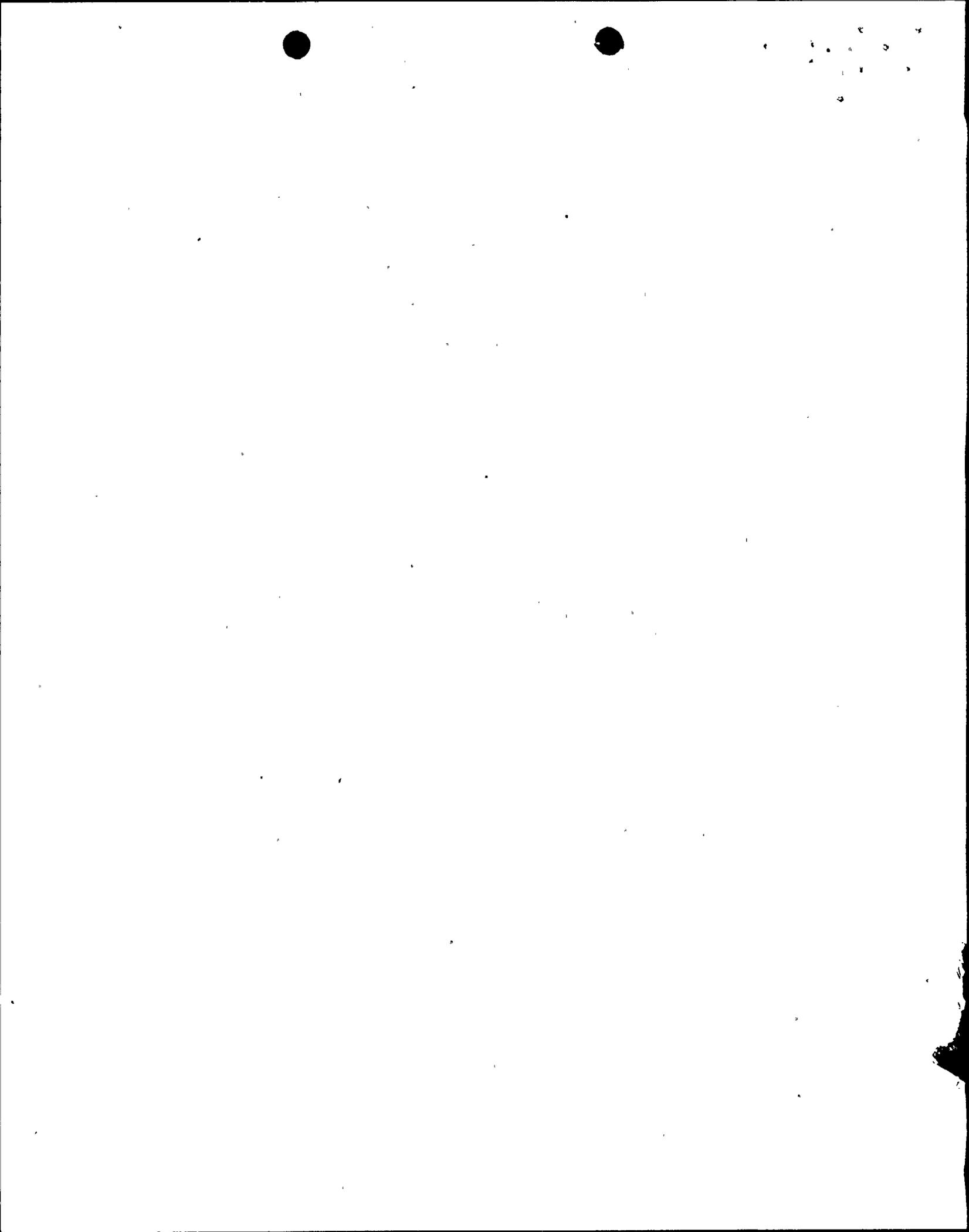


TABLE 2  
TEST EXCAVATION SUMMARY - SES-11

<u>Level</u>	<u>Depth (cm)</u>	<u>Dimensions (m)</u>	<u>Soil Color</u>	<u>Soil Texture</u>	<u>Ceramics</u>	<u>Bifaces</u>	<u>Utilized/ Retouched/ Flakes</u>	<u>Unmodified Flakes</u>	<u>Cobbles/ Pebbles</u>	<u>Ground Stone Tools</u>
I	0-28	1x1		Silt Loam	5	1	0	9	0	0
II	28-38	1x1		Silt Loam	2	2	1	13	3	1*
III	38-48	1x1		Silt Loam	0	0	0	5	8	0
IV	48-58	1x.5		Silt Loam	0	0	0	1	0	0
V	58-68	1x.5		Silt Loam	0	0	0	2	0	0
VI	68-98	.5x.35		Silt Loam	0	0	0	0	0	0

\*Engraved Stone

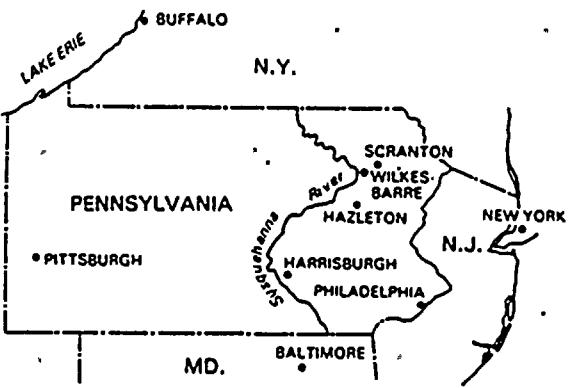
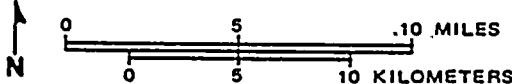
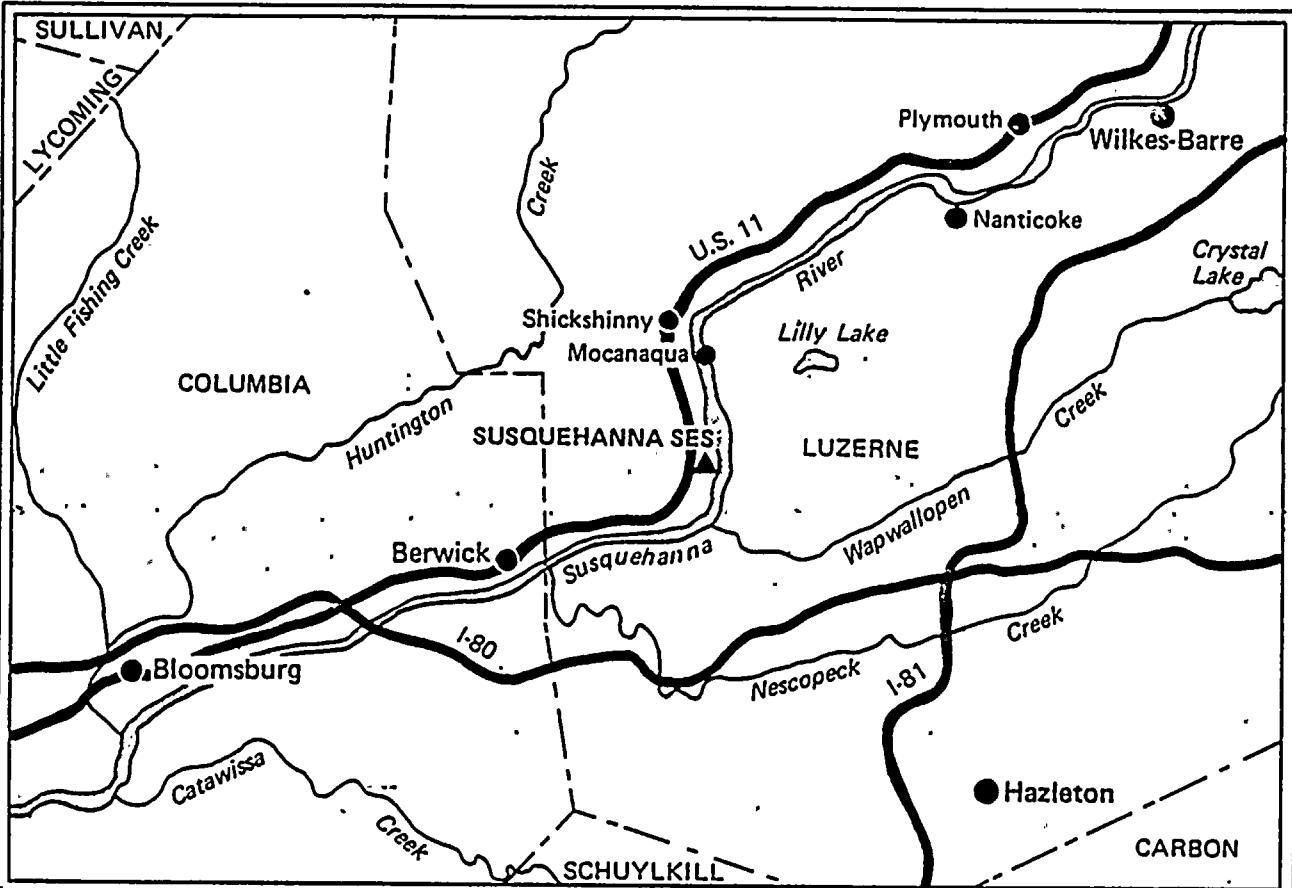
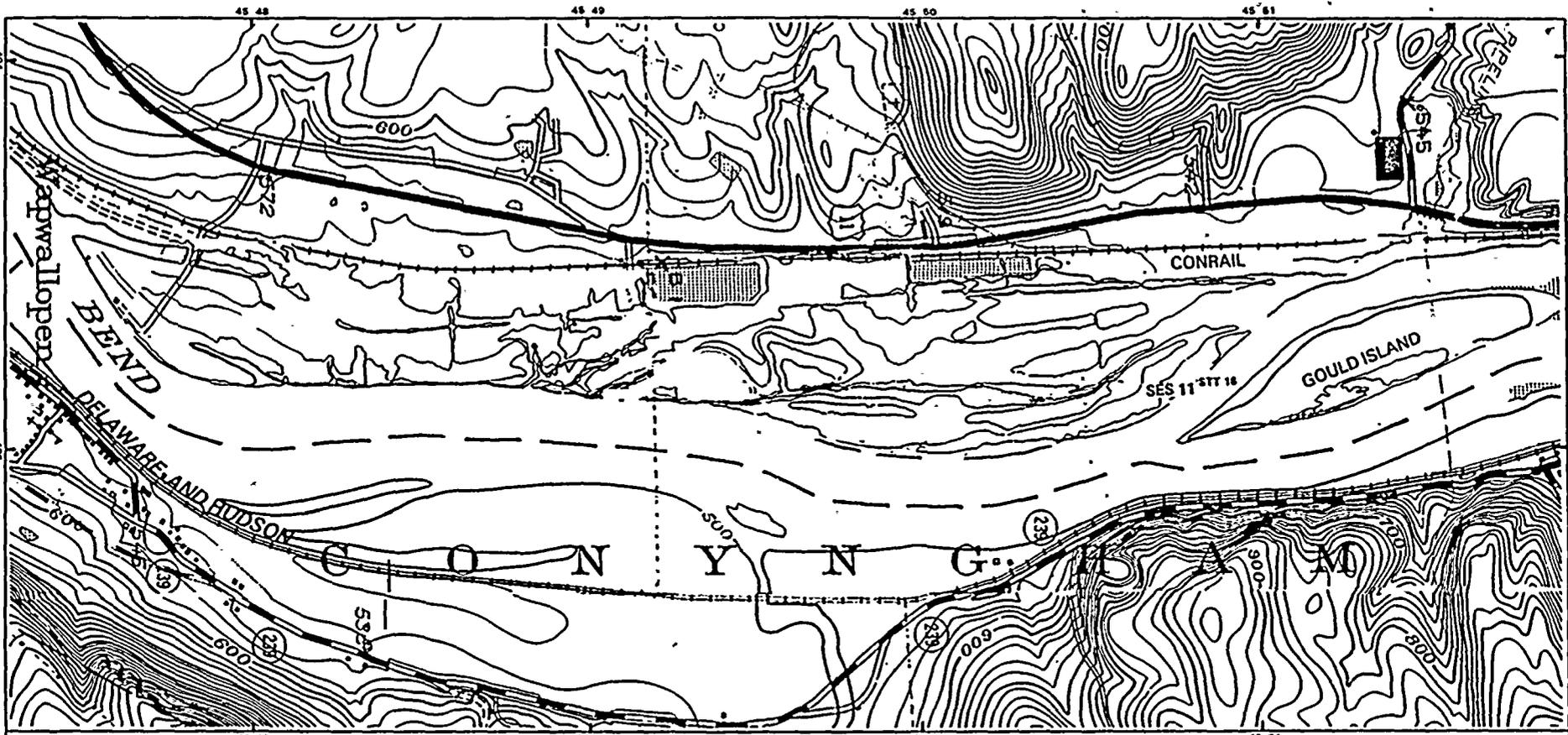


FIGURE 1  
 LOCATION OF SUSQUEHANNA SES SITE IN PENNSYLVANIA  
 SUSQUEHANNA S.E.S.  
 Archeological Investigations At The Pond Hill Reservoir Site





Berwick Quadrangle  
7.5 Minute Series

FIGURE 2

SES 11  
DEEP TEST TRENCHES, AND  
ARCHEOLOGICAL LOCALITIES  
ALONG THE SUSQUEHANNA  
S.E.S. FLOODPLAIN

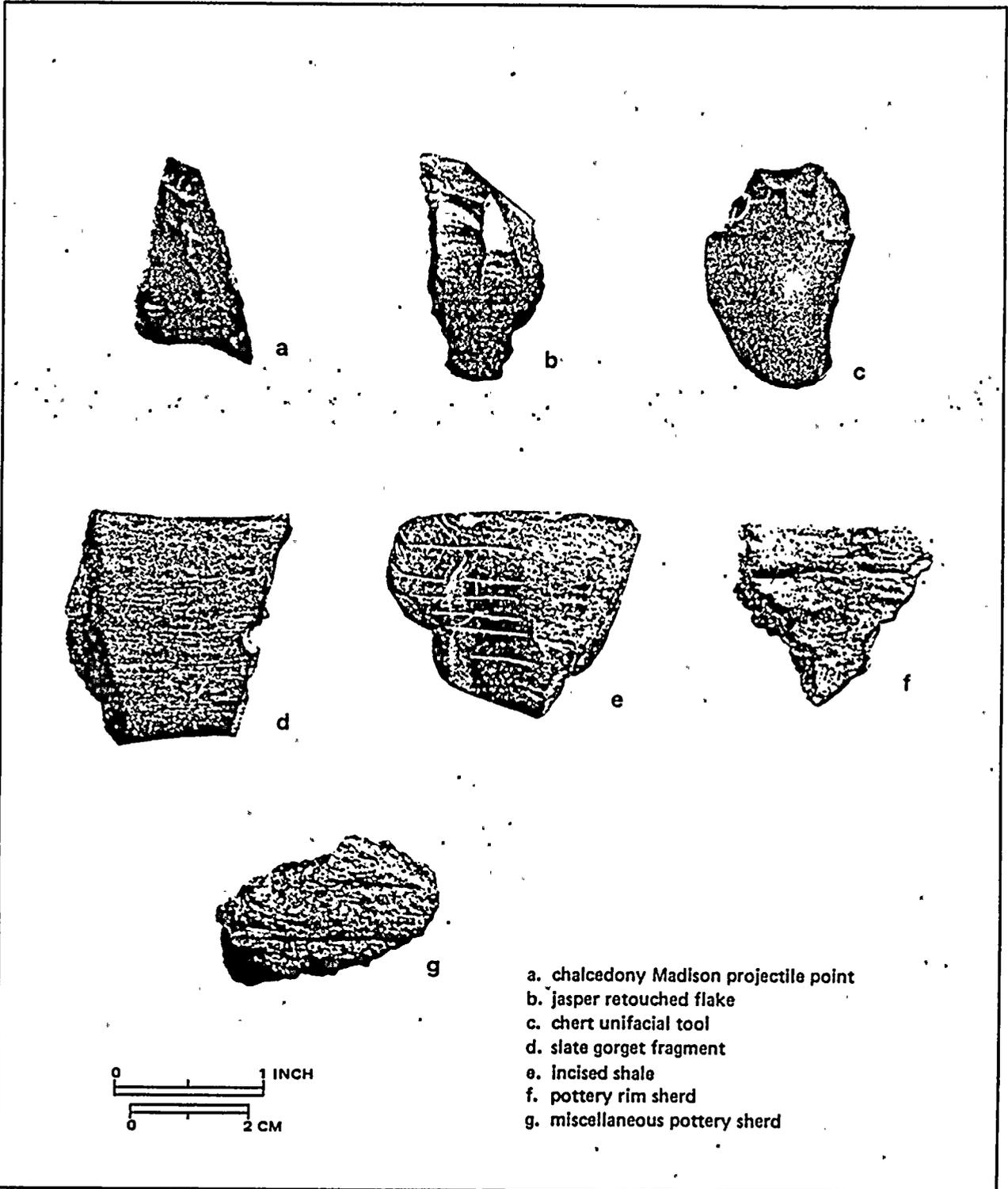
SUSQUEHANNA S.E.S.  
Archeological Investigations  
At The Susquehanna  
S.E.S. Floodplain

- GEOARCHEOLOGICAL TEST TRENCHES
- EXCAVATION UNITS

UMT References

18	404 940	45 50 780
Zone	Easting	Northing





- a. chalcedony Madison projectile point
- b. jasper retouched flake
- c. chert unifacial tool
- d. slate gorget fragment
- e. incised shale
- f. pottery rim sherd
- g. miscellaneous pottery sherd



PLATE I

ARTIFACTS: SES-11

SUSQUEHANNA S.E.S.

Archeological Investigations At The Susquehanna S.E.S. Floodplain



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## 8. Significance

Period	Areas of Significance—Check and justify below			
<input checked="" type="checkbox"/> prehistoric	<input checked="" type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates 500-1500 AD

Builder/Architect

### Statement of Significance (in one paragraph)

SES-11 appears to be a single component Late Woodland site and as such it is unique along the surveyed tract of the Susquehanna. Sites of this period are characterized by high degrees of individuality since evidence of widespread community interaction is lacking, especially when compared with the complex Middle Woodland. The period probably featured locally autonomous and highly territorial organizational networks (Kent et al. 1971). On the more regional level, since relatively little direct subsistence/settlement data has been synthesized for Pennsylvania over this period the presence of the diagnostic component at SES-11 in association with a natural stratigraphic unit provides a unique opportunity for examining the context of the prehistoric finds. Analogous sites in New York have provided evidence for deer, bear, waterfowl, as well as fish, turtle, and mussel exploitation (Ritchie 1965) and the identification of probable Woodland features along the central floodplain (site SES-6) confirms a high level of prehistoric activity at this time. Extensive site utilization was characteristic of the period and consistent with this trend SES-11 has not left a prominent archeological signature. The geoarcheological tests have also shown that the northern floodplain, at SES-11, was the most active segment along SES. The geoarcheological assessment is for aperiodic reworking of sediments, and by extension cultural residues, in such high-energy zones where the potential for preservation of contextual archeological materials is minimal. It is not likely that much diagnostic material cultural evidence at this location would have been preserved. Nevertheless, over the course of prehistoric time, progressive stabilization of the diversified aquatic habitats along the Susquehanna, as documented by sedimentological studies (Schuldenrein et al. 1981), would have resulted in the establishment of well-rooted subsistence strategies focusing on specialized hunting and gathering. The SES-11 locale may have been a key setting for low-intensity or specialized activities.

Analyses of raw materials utilized at SES-11 shows that along with probable resource specialization, the Woodland peoples of the floodplain had mastered the use of several different stone types. Accordingly, it was shown that while Archaic peoples favored argillite exploitation, the later Woodland groups diversified and made extensive use of chert, jasper and rhyolite (Schuldenrein et al. 1981). The limited information gained from examination of the prehistoric artifacts and sediments at SES-11 showed that the site is diagnostic of certain trends characteristic of the period:

1. The site sedimentary environment reflects the subsistence advantages afforded by a well differentiated floodplain locale;
2. Raw material use indicates versatile technological expertise and efficiency practiced by peoples adapted to diversified but specialized subsistence modes.

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## 9. Major Bibliographical References

Kent, Barry C., Ira F. Smith, and Catherine McCann  
1971 Foundations of Pennsylvania Prehistory. Anthropological Series  
of the Pennsylvania Historical and Museum Commission No. 1.

## 10. Geographical Data

Acree of nominated property 0.4 acres

Quadrangle name Berwick

Quadrangle scale 1:24,000

UMT References

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Zone Easting Northing

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Verbal boundary description and justification

See Description: Boundaries entry

List all states and counties for properties overlapping state or county boundaries

state code county code

state code county code

## 11. Form Prepared By

name/title Joseph Schuldenrein

organization Commonwealth Associates Inc.

date 8/4/82

street & number 209 East Washington Avenue

telephone (517) 788-3561

city or town Jackson

state Michigan 49201

## 12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national  state  local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature

title date

For NCRS use only  
I hereby certify that this property is included in the National Register

date

Keeper of the National Register

date

Chief of Registration

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