Hopewell Ceremonial Earthworks

Ohio
United States of America

Nomination to the
World Heritage List by the
United States of America

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2022

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"As Native people, our connections to these and other sites is reflected in a common saying I have heard all my life that 'We walk on the bones of our ancestors'—to solemnize our connections to the ones who came before us, as well as to demonstrate our intimate connection to the land."

John N. Low
Director, Newark Earthworks Center
Citizen, Pokagon Band of Potawatomi
(From: *Imprints: The Pokagon Band of Potawatomi & the City of Chicago*, 2016)

Contents

Cover Photo of Great Circle Earthworks by Timothy E. Black.

All photographs not otherwise credited are by John E. Hancock

"Walking inside the Fort Ancient and Newark earthworks... one is confounded by a multiplicity of sensations: that here are the greatest works of art on the American continent...; that here in the seductive Ohio Valley are perhaps the greatest art monuments in the world."

Barnett Newman (1905-1970)
American Abstract Expressionist Painter
(From: Anthes, *Native Moderns: American Indian Painting, 1940-1960*, 2006)

Executive Summary

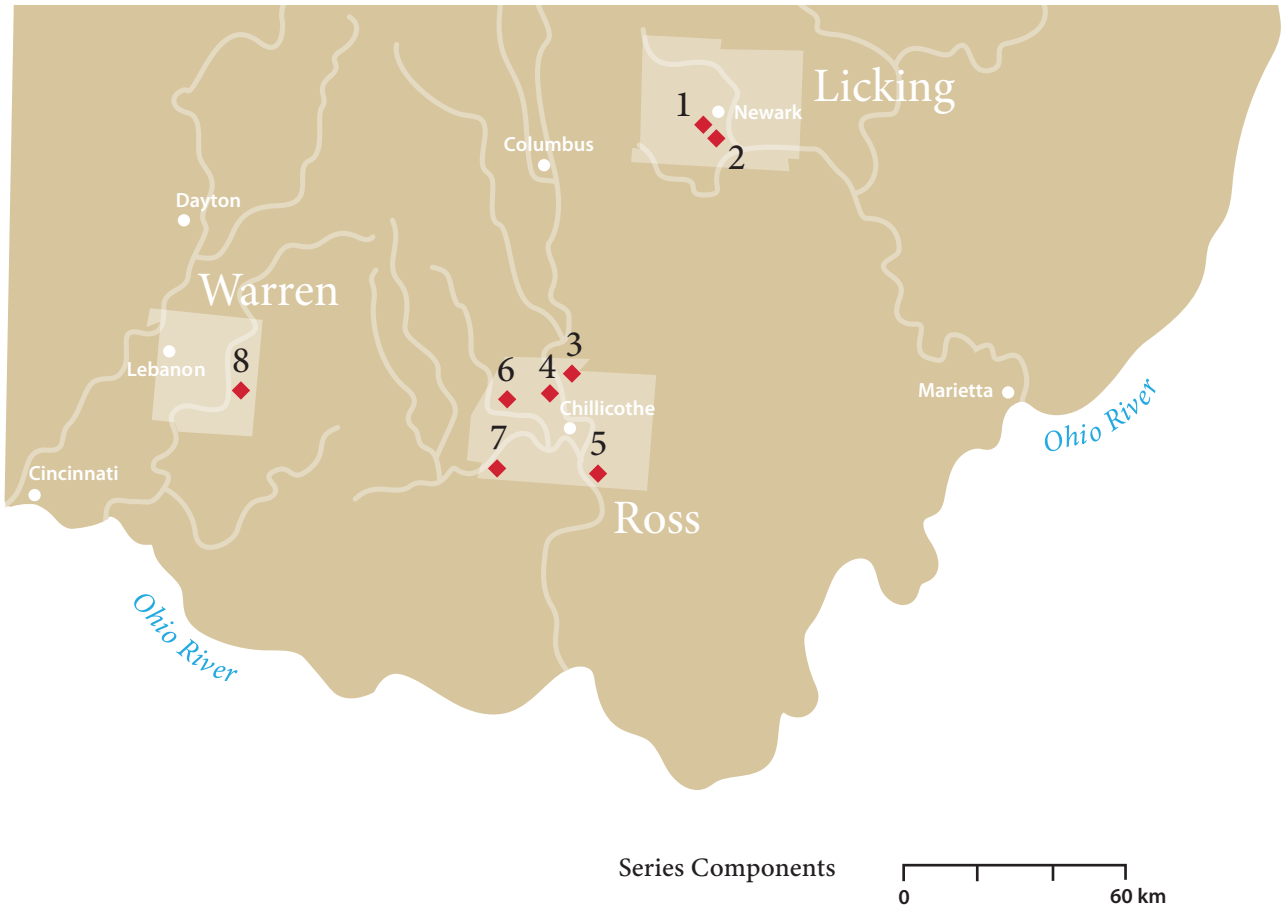
"All of us who are Indian are descendants of the Mound builders, and their blood runs in our veins."

Donald Fixico
Distinguished Foundation Professor of History
Arizona State University
Citizen, Shawnee/Sac & Fox/Muskogee

Executive Summary

State Party:	United States of America
State, Province, or Region:	Ohio
Name of Property:	Hopewell Ceremonial Earthworks
Textual Description of the Boundaries of the Nominated Properties	The Hopewell Ceremonial Earthworks is a serial nomination consisting of eight ancient Indigenous ceremonial earthworks built in the present-day southern half of the State of Ohio, spanning a distance of 150 kilometers. The World Heritage Property Boundary of each of the eight components lies within the publicly owned lands of Hopewell Culture National Historical Park (a unit of the U. S. National Park Service), the State of Ohio, or the Ohio History Connection. The Boundaries encompass the mounds, earthworks, and archaeological features essential to the Outstanding Universal Value of the Property. They also include margins that encompass likely archaeological resources associated with the varying degrees of degradation of some of the earthworks over time, generally 10 to 30 meters wherever possible. The Buffer Zone surrounding each component includes other parts of the contiguous state or federal land, and in some cases extends into surrounding private or other public property that is protected by local designations, or committed to long-term compatible land use. The Buffer Zones are designed to protect the existing character of the rural or suburban surroundings, and maintain viewsheds important to the Property's Outstanding Universal Value.

ID #	Name of the Component Part	County	Coordinates of the Central Point		Area of Nominated Component of the Property (ha)	Area of the Buffer Zone	See Map on Page…
1		Licking	40.053657°	82.446061°	43.2	30.3	30
2		Licking	40.0412328°	82.430119°	20.2	16.5	31
3		Ross	39.384791°	82.979155°	22.7	80.4	33
4		Ross	39.3764891°	83.003989°	13.1	34.0	34
5		Ross	39.298561°	82.918490°	26.0	30.4	35
6		Ross	39.360984°	83.093372°	69.5	59.9	36
7		Ross	39.237470°	83.219824°	56.2	107.3	37
8		Warren	39.40336°	84.092549°	69.8	203.0	39
			Total Area (in hectares)		320.7 ha	561.8 ha	

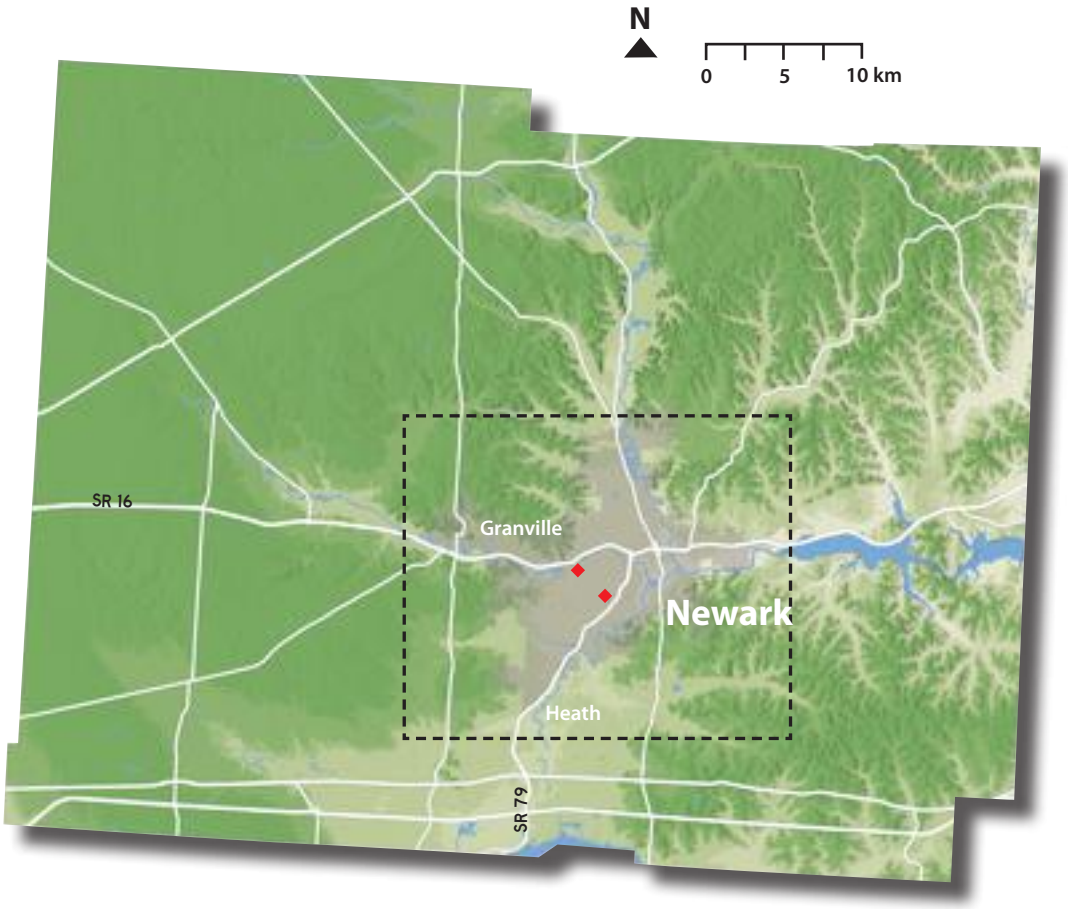


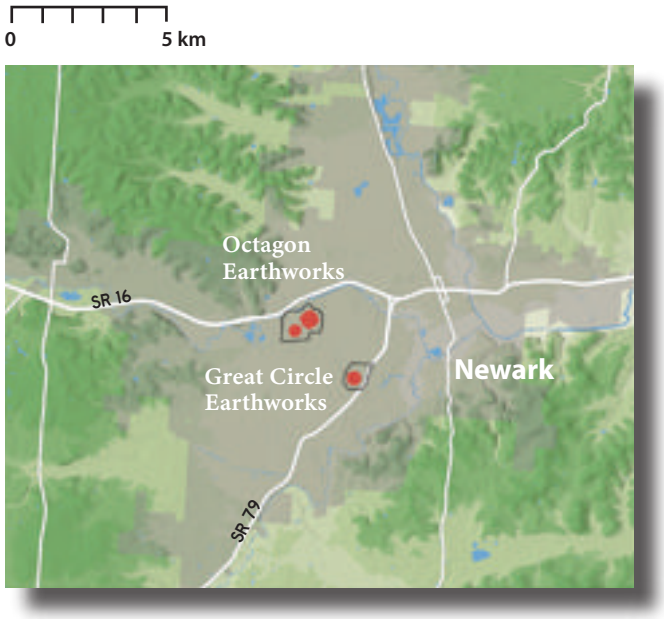
Series Components

0 60 km

National Map Sources	United States Geological Survey, Environmental Systems Research Institute (ESRI), National Atlas, Natural Earth Data, United States Department of Agriculture FSA, United States National Park Service, ESRI Imagery Sources: DigitalGlobe, GeoEye, i-cubed, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.
State & County Map Sources	All of the above, plus: Ohio Department of Natural Resources, Ohio GIS Database, Ohio Geographic Reference Information Project (OGRIP) 2021, U. S. Geological Survey 2021, National Hydrography Dataset, 3D Elevation Program 1-Meter Resolution Digital Elevation Model, U. S. Topographic Data.
Local & Earthwork Map Sources	All of the above, plus: Ohio History Connection, U. S. National Park Service, Deutsches Archäologisches Institut, Google Earth, Ohio LiDAR Database, U. S. Forest Service, Licking County Auditors 2019 Parcel Data, Ross County Auditors 2019 Parcel Data, Warren County Auditors 2019 Parcel Data, various definitive survey and archaeological plans of individual earthworks.

Licking County





Octagon Earthworks

Hopewell Ceremonial Earthworks

Above Grade

WH Boundary

WH Buffer

WH Boundary Center Coordinate

0 300 m

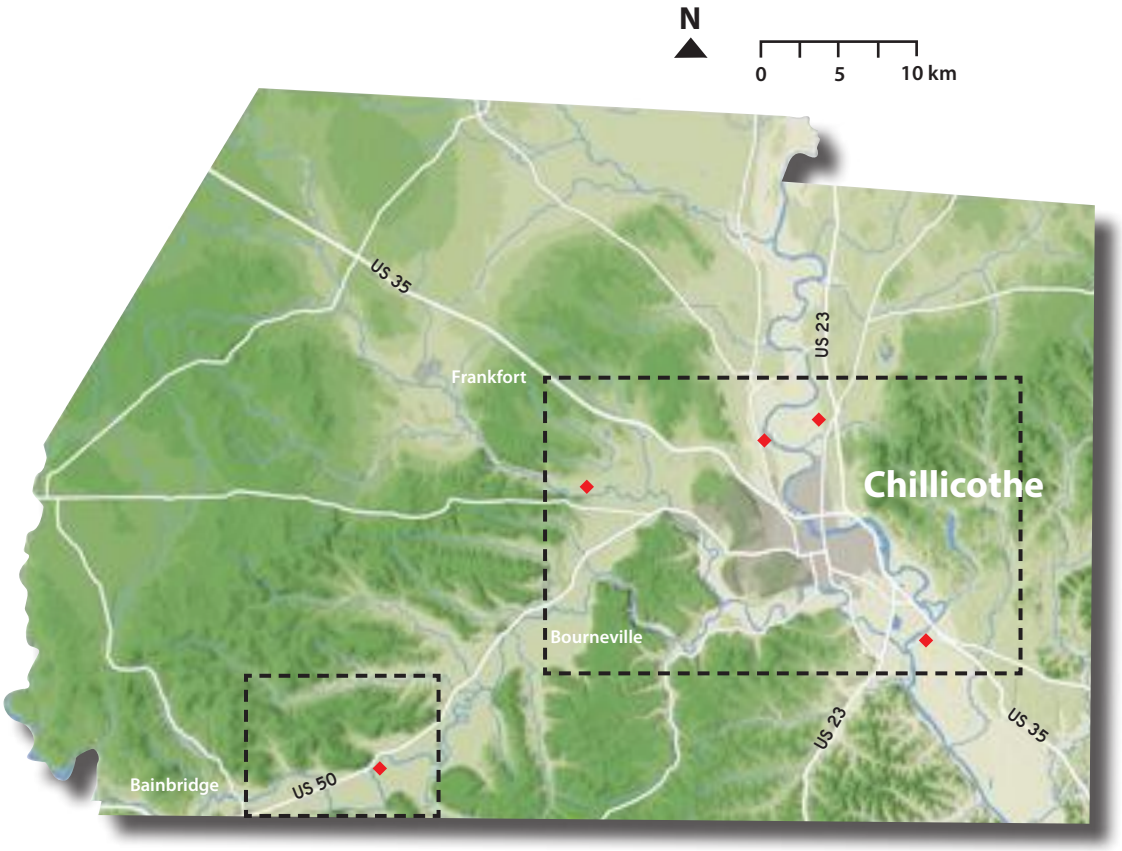
Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

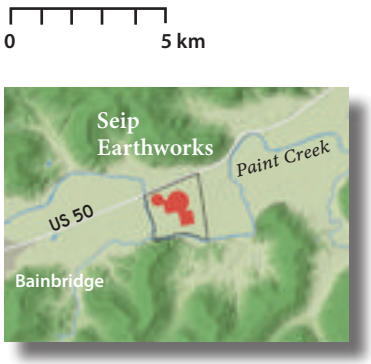
Great Circle Earthworks

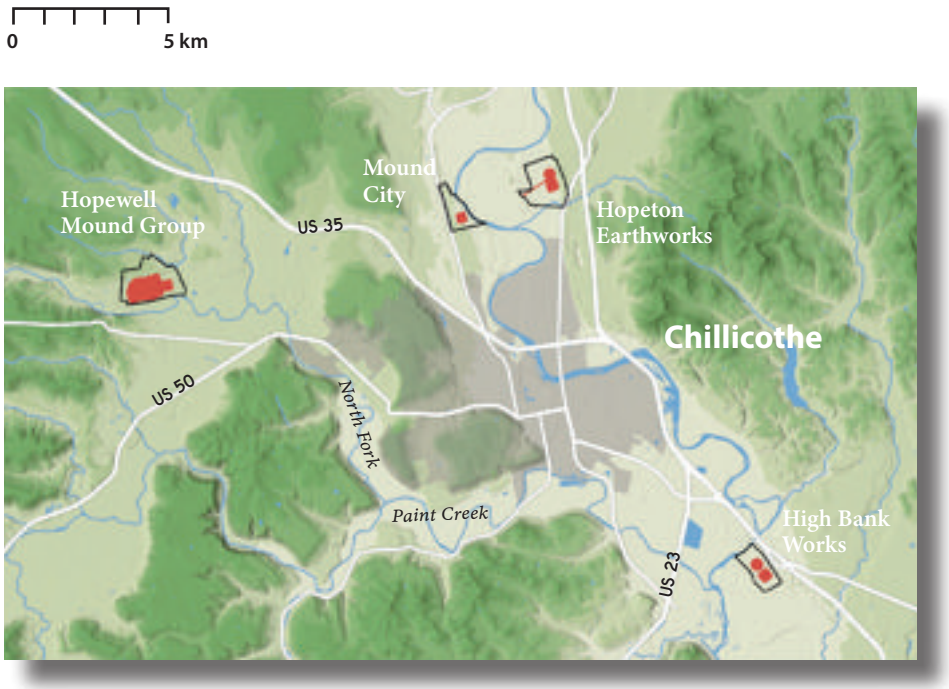
Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Ross County


N
0
5
10 km
US 35
US 23
Frankfort
Chillicothe
Bourneville
Bainbridge
US 50
US 23
US 35

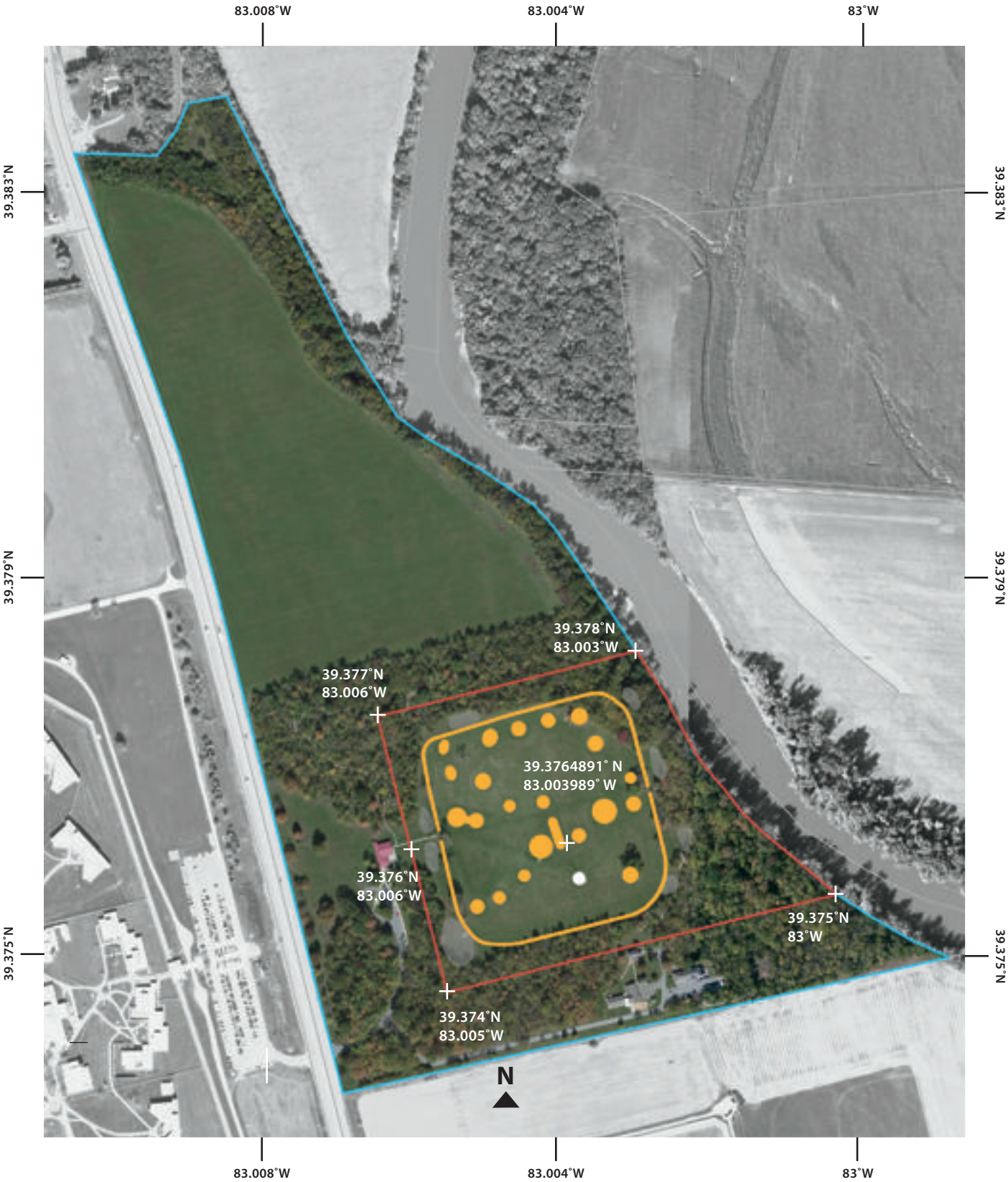

0
5 km
Seip
Earthworks
Paint Creek
US 50
Bainbridge


0
5 km
Hopewell
Mound Group
US 35
Mound
City
Hopeton
Earthworks
Chillicothe
US 50
North Fork
Paint Creek
High Bank
Works
US 23

Hopeton Earthworks

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection



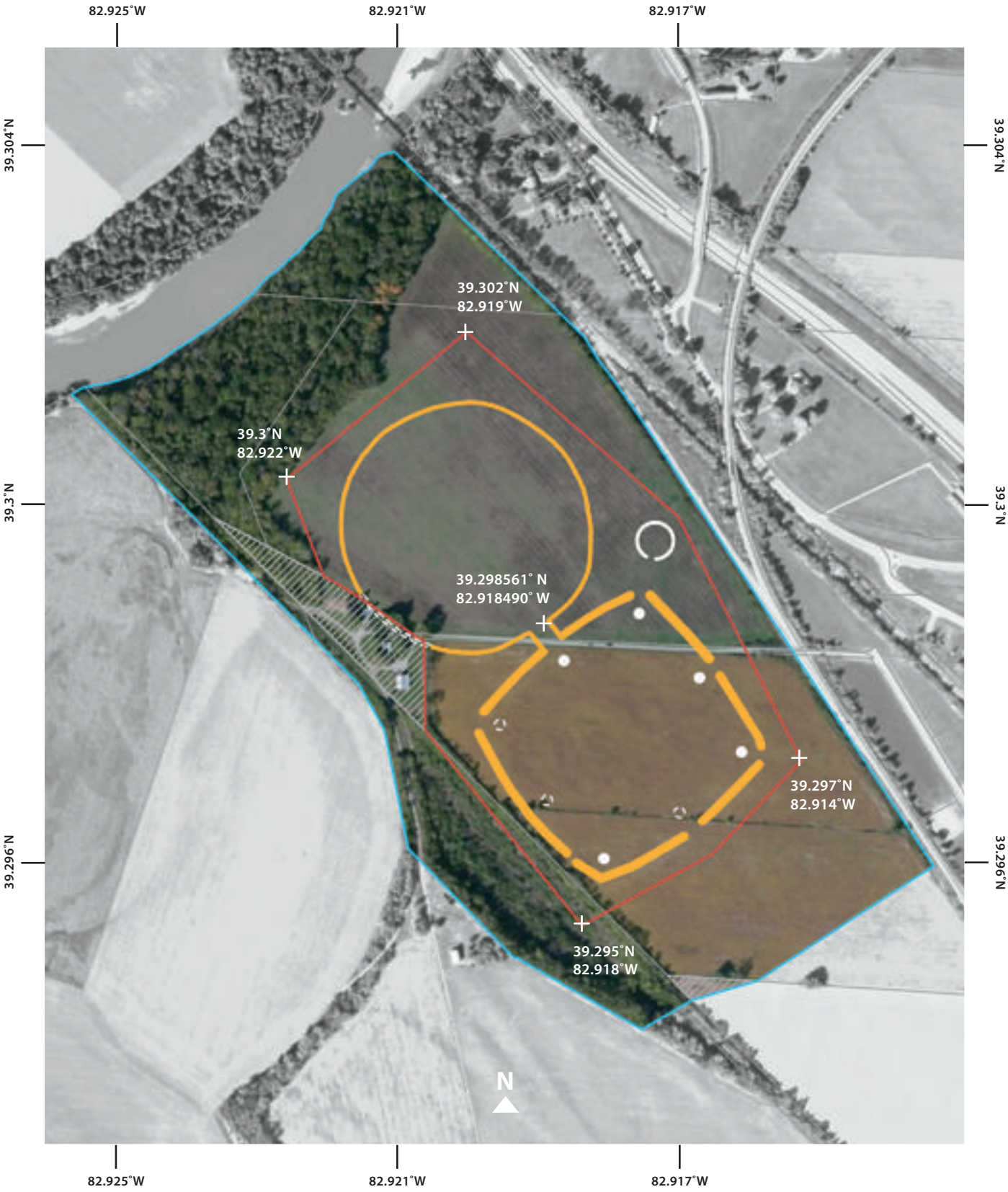
Mound City

Hopewell Ceremonial Earthworks

Above Grade
Below Grade
Depression/ Ponds/Pits
WH Boundary
WH Buffer
WH Boundary Center Coordinate

0 300 m

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection



0 300 m

- Above Grade
- Below Grade
- Lost/Inferred
- WH Boundary
- WH Buffer
- Private Land *within NPS Authorized Boundary*
- \+ WH Boundary Center Coordinate

High Bank Works

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Hopewell Mound Group

Hopewell Ceremonial Earthworks

- Above Grade
- Below Grade
- Lost/Inferred
- Depression/ Ponds/Pits
- WH Boundary
- WH Buffer
- Private Land *within NPS Authorized Boundary*
- \+ WH Boundary Center Coordinate

0 — 500 m

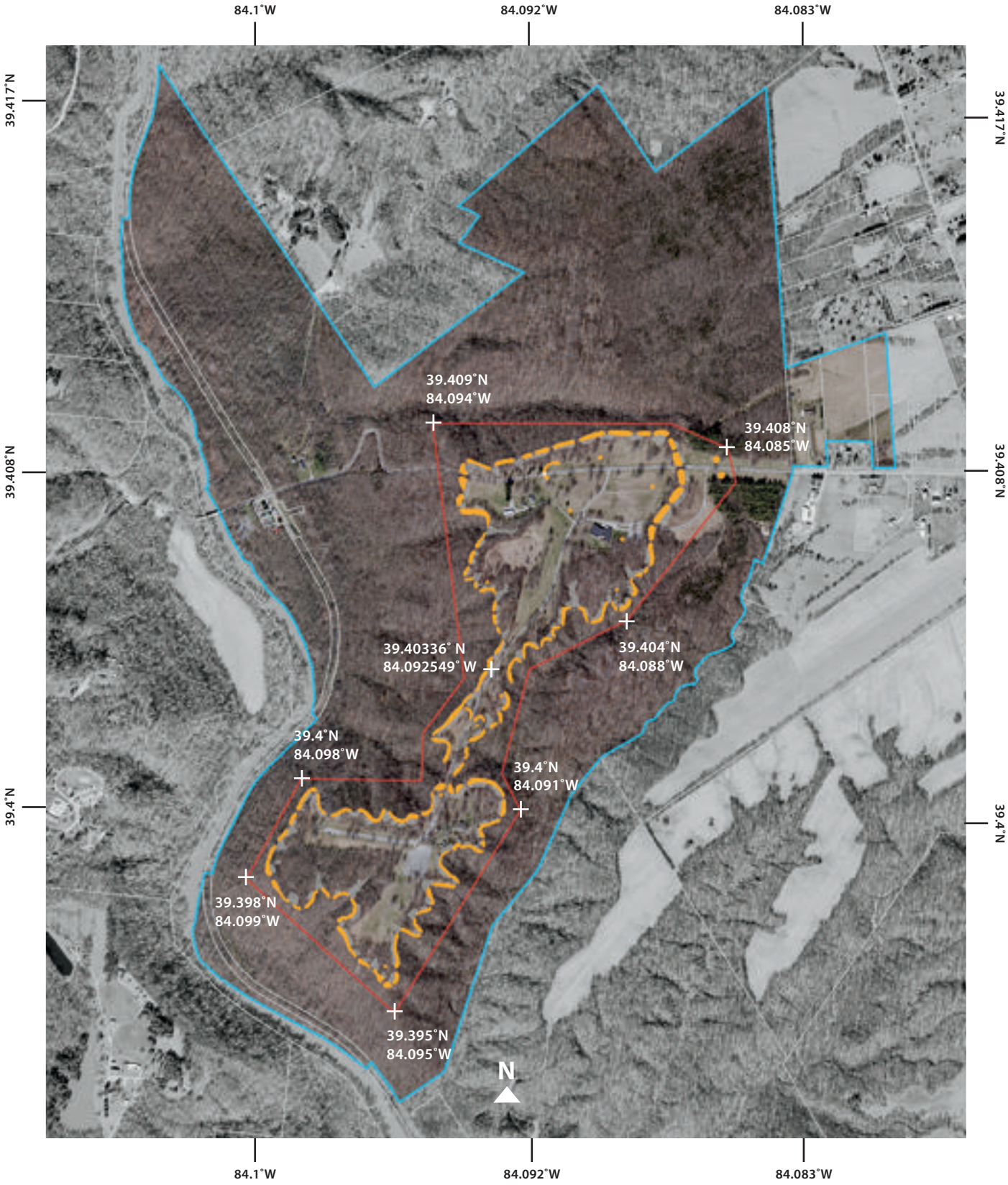
Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Seip Earthworks

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Warren County



0 500 m

Above Grade
Depression/ Ponds/Pits
WH Boundary
WH Buffer
WH Boundary Center Coordinate

Fort Ancient

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Criteria Under Which Property is Nominated

The Hopewell Ceremonial Earthworks are nominated under the following criteria:

The Hopewell Ceremonial Earthworks are Masterpieces of Human Creative Genius.

The Hopewell Ceremonial Earthworks bear a unique testimony to the tradition of the Indigenous Hopewell culture of two millennia ago.

Draft Statement of Outstanding Universal Value

The Hopewell Ceremonial Earthworks are a series of eight monumental Indigenous earthen enclosure complexes built along the central tributaries of the Ohio River in east central North America between 2000 and 1600 years ago. The eight components extend across a distance of 150 kilometers in southern Ohio, and the largest of the individual works encloses 55 hectares. Conceived and designed as ceremonial centers, these immense earthworks are the finest and most representative surviving expressions of the cultural flowering and distinctive genius of an Indigenous tradition now referred to as the Hopewell culture.

Their enormous scale and complexity is evident in precise geometric figures as well as hilltops sculpted to enclose vast, level plazas. Huge squares, circles, and octagons are executed with an astonishing precision of form, technique, and dimension, consistently deployed across a wide geographic region. There are alignments not only with the sun's cycles, but also with the far more complex rising and setting patterns of the moon.

These earthworks served as ceremonial centers, built by dispersed, non-hierarchical groups whose way of life was supported by a mix of foraging and farming, and who developed sophisticated knowledge of astronomy, geometry, and earthen construction. These sites were the foci of a continent-wide sphere of influence and interaction, and have yielded exceptionally finely crafted ritual objects fashioned from exotic raw materials obtained from distant places.

Criterion (i)

The Hopewell Ceremonial Earthworks are highly complex masterpieces of landscape architecture. They are exceptional among ancient earthworks worldwide not only in their enormous scale and wide geographic distribution, but in their geometric precision (such as circles greater than 300 meters with less than 0.25 meter variance, and a standard unit of measure) and in their astronomical breadth and accuracy (such as encoding all eight lunar standstills over an 18.6-year cycle). These features imply high-precision techniques of design and construction and an observational knowledge of complex astronomical cycles that would have required generations to codify. The series includes the finest extant examples of these various principles, shapes, and alignments, both in geometric earthworks and in the

pre-eminent surviving hilltop enclosure. They reflect the pinnacle of Hopewell intellectual, technical, and symbolic achievement—an autochthonous monumental architectural tradition of extraordinary power and grandeur. They remain tours-de-force of landscape architectural design and engineering; their scale, precision, complexity, and extent is unmatched anywhere in the world.

Criterion (iii)

The complexity of these earthwork sites bears exceptional testimony to the unique characteristics of their builders, who lived in small, dispersed, egalitarian groups, between 1 and 400 CE, among the river valleys of what is now southern and central Ohio. Their economy was a mix of foraging, fishing, farming, and cultivation, yet they gathered periodically to create, manage, and worship within these massive public works. The precision of their carefully composed earthen architecture, and its timber precursors, reflected an elaborate ceremonialism and linked it with the order and rhythms of the cosmos. The continent-wide reach of this culture's interactions is evident in raw materials brought from as far away as the Rocky Mountains, a distance of over 2,500 kilometers. Mica, copper, obsidian, and other exotic materials were formed into beautiful ritual objects, spectacular offerings of religious icons and regalia. The quantity, diversity, and aesthetic quality of these artifacts have few equals in the history of American Indian artistry. The earthworks in this series, together with their associated artifacts and archaeological remains, offer the finest extant testimony to the nature, scope, and richness of the Hopewell cultural tradition.

Statement of Integrity

Within the Boundary of this 320.7-hectare serial Property are all the attributes necessary to convey and sustain its Outstanding Universal Value. These include the earthwork walls, gateways, ditches, ponds, and in situ archaeological remains. The series is of sufficient size to ensure the complete representation of the features and values that convey the Property's significance, through the inclusion of the largest and best-preserved examples of each major geometric form found among Hopewell earthworks, as well as the most important hilltop enclosure. In addition, all of the components are complete and in good condition, with the ability to convey their large forms and the relationships among them. There is a 561.8-hectare Buffer Zone around the nominated components to protect the attributes that sustain their Outstanding Universal Value. The Property does not suffer from adverse effects of development and/or neglect, as each site is managed as a public park in rural or low-density suburban settings. The curated artifacts in site-based collections also help support the understanding of the attributes, providing extensive evidence of the creative genius and sophisticated knowledge and skills of the earthwork builders, and giving ample testimony to the domestic as well as the ceremonial places and practices of the Hopewell culture.

Statement of Authenticity

The Hopewell Ceremonial Earthworks are authentic to an extraordinary extent, given the long time that has elapsed since their construction, in terms of their locations and settings, forms and designs, materials and substance, and spirit and feeling. The locations for all the components are unchanged; the settings for the earthworks are still predominantly semi-rural or are in low-density residential districts buffered for most of their perimeters by parkland. In form and design, the earthworks' enclosure walls and mounds remain mostly intact. Seip, Hopewell, Hopeton, and High Bank reveal sub-surface portions of their forms clearly in high-resolution remote-sensing data, indicating intact sub-surface remains of the base layers of wall and building construction. The predominant materials and substance of the earthworks are likewise authentically preserved in the intact forms of Fort Ancient and the components at Newark, and in the in-situ archaeological remains at all the other sites. The respectful management and presentation of the eight components helps to convey the uncanny grandeur of these gigantic enclosures, their scope and beauty, and their geometrical and astronomical precision. Their spiritual resonance with contemporary American Indian Woodland traditions also supports a vivid authenticity of spirit and feeling.

Requirements for Protection & Management

All of the Hopewell Ceremonial Earthwork components are protected as national or state parks and do not suffer from adverse effects of development or neglect. The standing structures, the landscape features, and the archaeological resources necessary to convey the Outstanding Universal Value of the nominated serial Property are in good to excellent condition. Detailed management plans are in place for all eight earthwork sites, following the established policies and legal requirements of their respective governmental owner agencies, the Ohio History Connection and the U. S. National Park Service, whose local representatives work closely together to provide consistent and coordinated management for the series. All features and elements within the Boundary of the nominated Property are closely monitored on a regular basis by professional expert staff from the two owner agencies. Regular maintenance and periodic conservation programs ensure that the sites, features, and resources will be sustained in a superior state of conservation into the future. Rigorous federal, state, and local protective measures are also in place to ensure the continued conservation and protection of the nominated Property. The Property is not under any major environmental threats or developmental pressures.

Name & Contact Information of Official Local Institution/Agency

Stephen Morris
Chief, Office of International Affairs
United States National Park Service
1849 C Street NW, Room 2741
Washington, DC 20240
T: 202-354-1803
F: 202-371-1446
E: Stephen_morris@nps.gov
W: www.nps.gov/orgs/1955/index.htm

Jennifer Aultman
Director of Historic Sites and Museums
World Heritage Director
Ohio History Connection
800 E. 17th Ave
Columbus, OH 43211
T: 614-297-2300
E: jaultman@ohiohistory.org
W: www.ohiohistory.org

1

Section 1:
Identification of the Property

"… soil was the palette from which they chose to paint their interpretation and understanding of the world. These places, whether they are places of worship or tools to measure the creation, should be treated as altars. Altars to either the mysteries or to the cosmos."

Benjamin Barnes
Chief, Shawnee Tribe

Identification of the Property

1.a	**State Party:**	United States of America
1.b	**State, Province, or Region:**	Ohio
1.c	**Name of Property:**	Hopewell Ceremonial Earthworks

ID #	Name of the Component Part	County	Coordinates of the Central Point		Area of Nominated Component of the Property (ha)	Area of the Buffer Zone	See Map on Page…
1		Licking	40.053657°	82.446061°	43.2	30.3	30
2		Licking	40.0412328°	82.430119°	20.2	16.5	31
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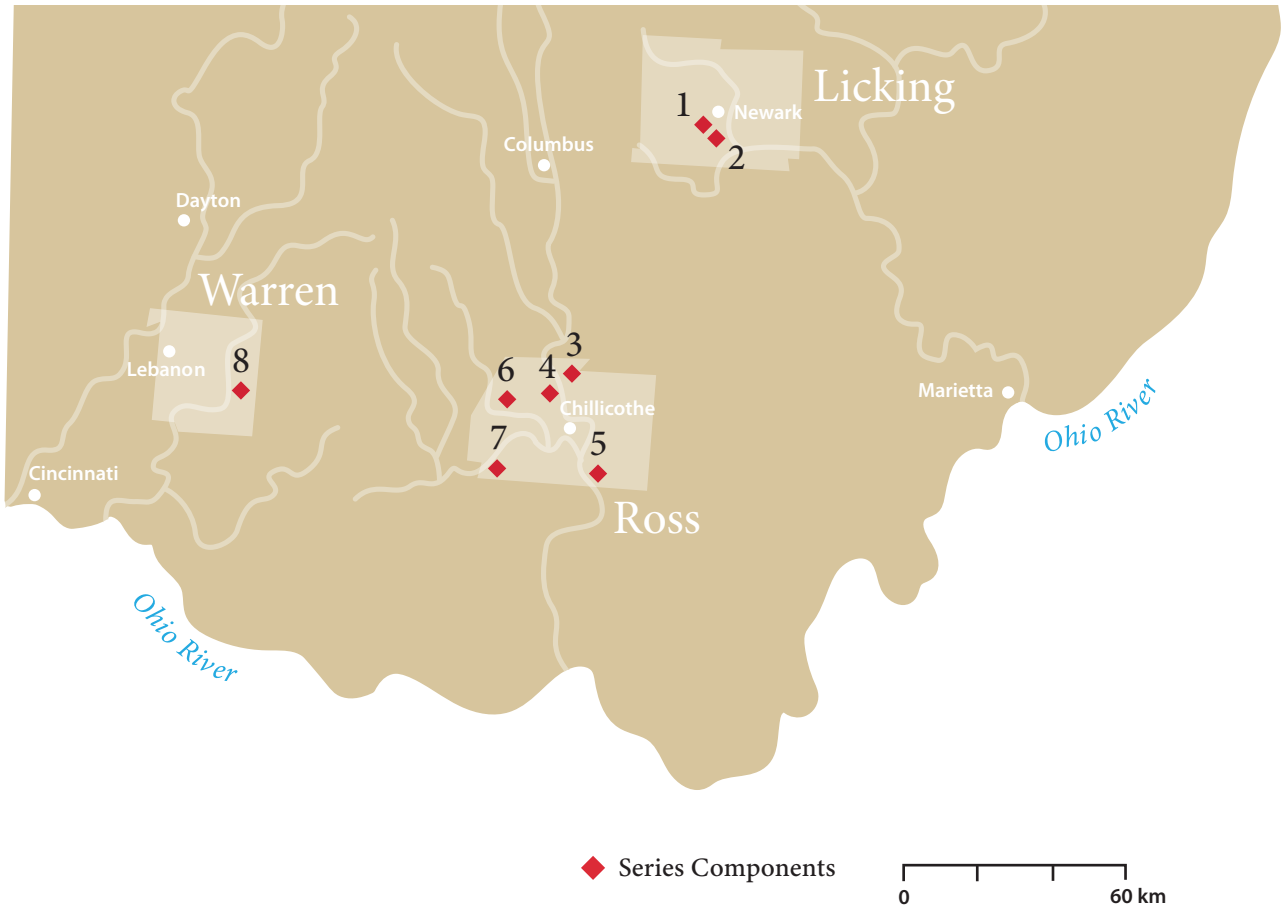
6		Ross	39.360984°	83.093372°	69.5	59.9	36
7		Ross	39.237470°	83.219824°	56.2	107.3	37
8		Warren	39.40336°	84.092549°	69.8	203.0	39
			Total Area (in hectares)		320.7 ha	561.8 ha	


N
CANADA
UNITED STATES
OHIO
MEXICO
OHIO


Licking
1
Newark
2
Columbus
Dayton
Warren
Lebanon
8
6
4
3
Chillicothe
7
5
Marietta
Ohio River
Cincinnati
Ross
Ohio River
Series Components
0
60 km

National Map Sources	United States Geological Survey, Environmental Systems Research Institute (ESRI), National Atlas, Natural Earth Data, United States Department of Agriculture FSA, United States National Park Service, ESRI Imagery Sources: DigitalGlobe, GeoEye, i-cubed, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.
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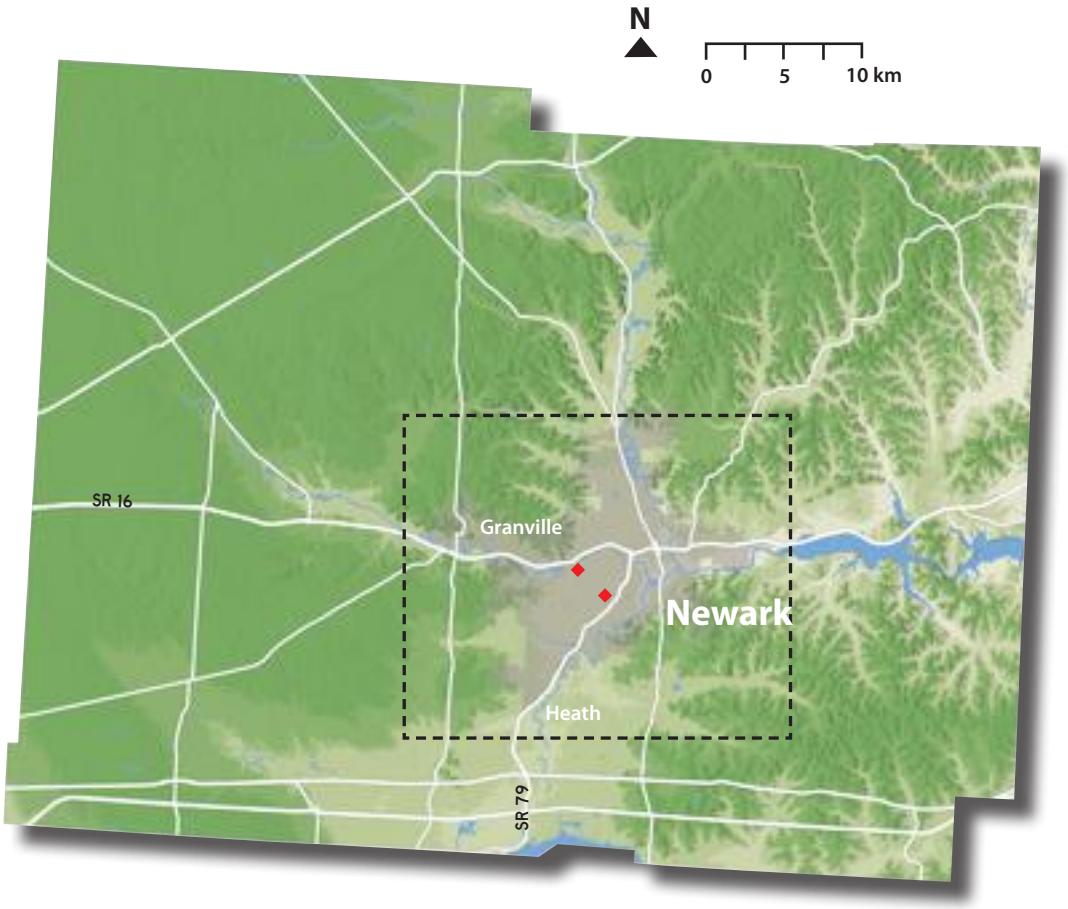
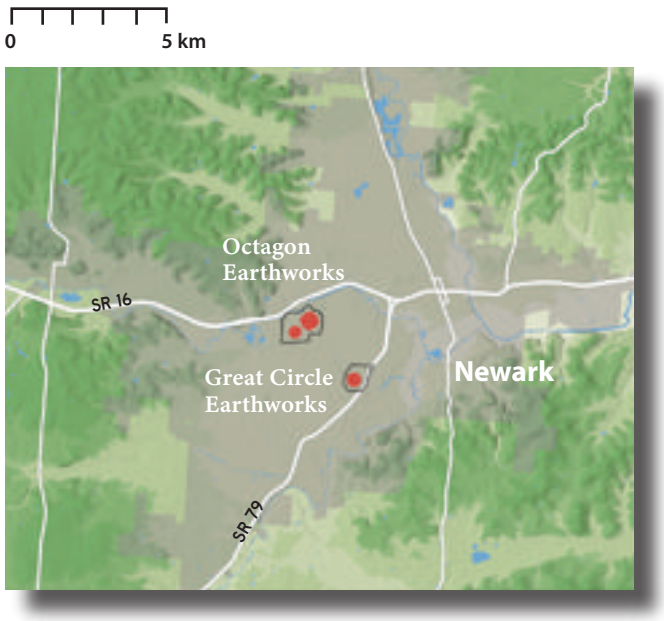
Licking County





Octagon Earthworks

Hopewell Ceremonial Earthworks

Above Grade

WH Boundary

WH Buffer

WH Boundary Center Coordinate

0 300 m

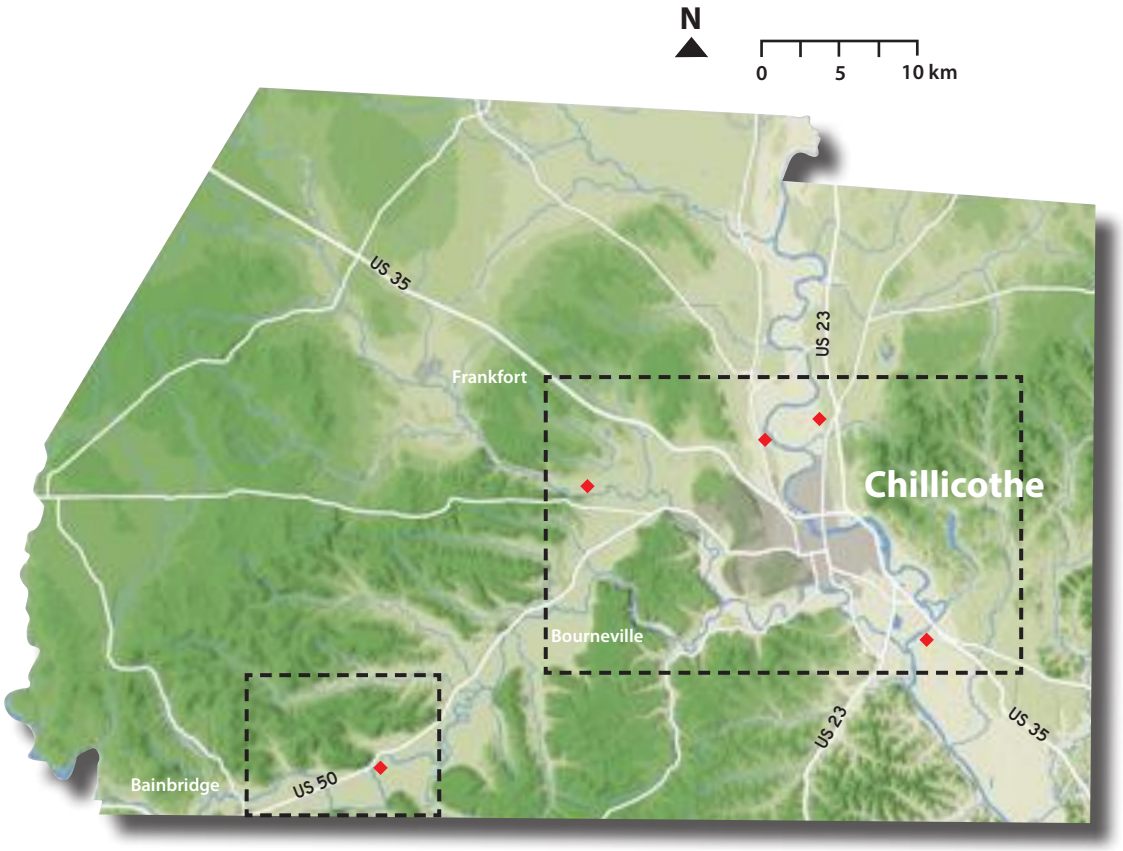
Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

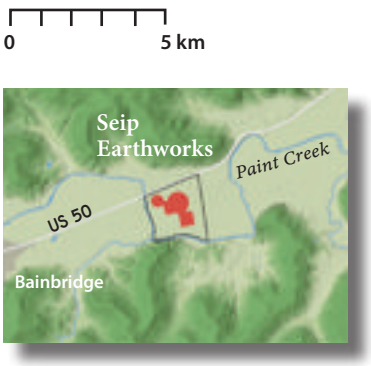
Great Circle Earthworks

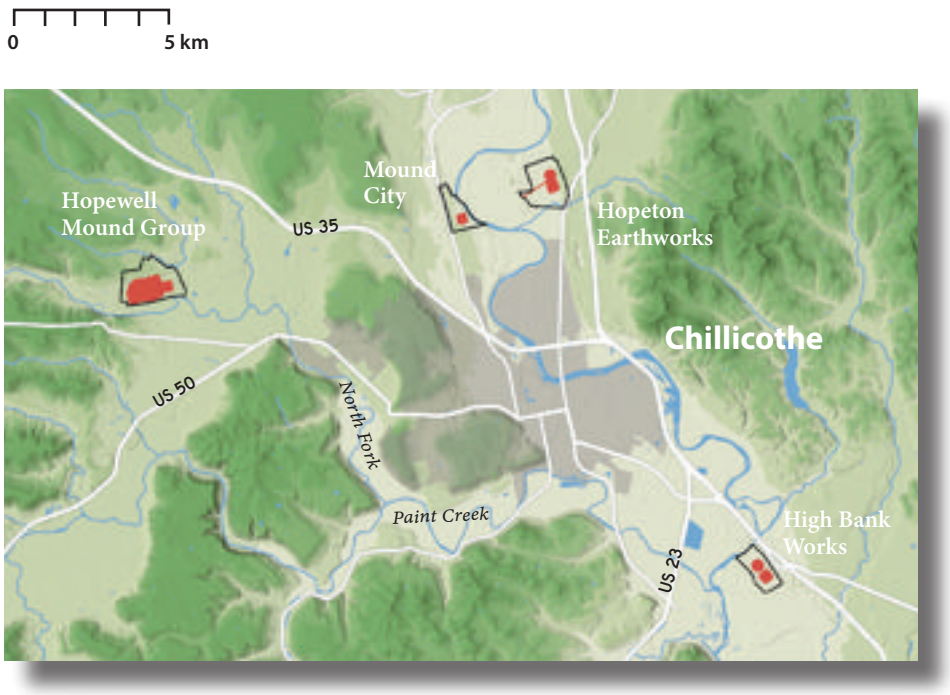
Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Ross County


N
0
5
10 km
US 35
US 23
Frankfort
Chillicothe
Bourneville
US 23
US 35
Bainbridge
US 50


0
5 km
Seip
Earthworks
Paint Creek
US 50
Bainbridge


0
5 km
Hopewell
Mound Group
US 35
Mound
City
Hopeton
Earthworks
Chillicothe
US 50
North Fork
Paint Creek
High Bank
Works
US 23

Hopeton Earthworks

Hopewell Ceremonial Earthworks

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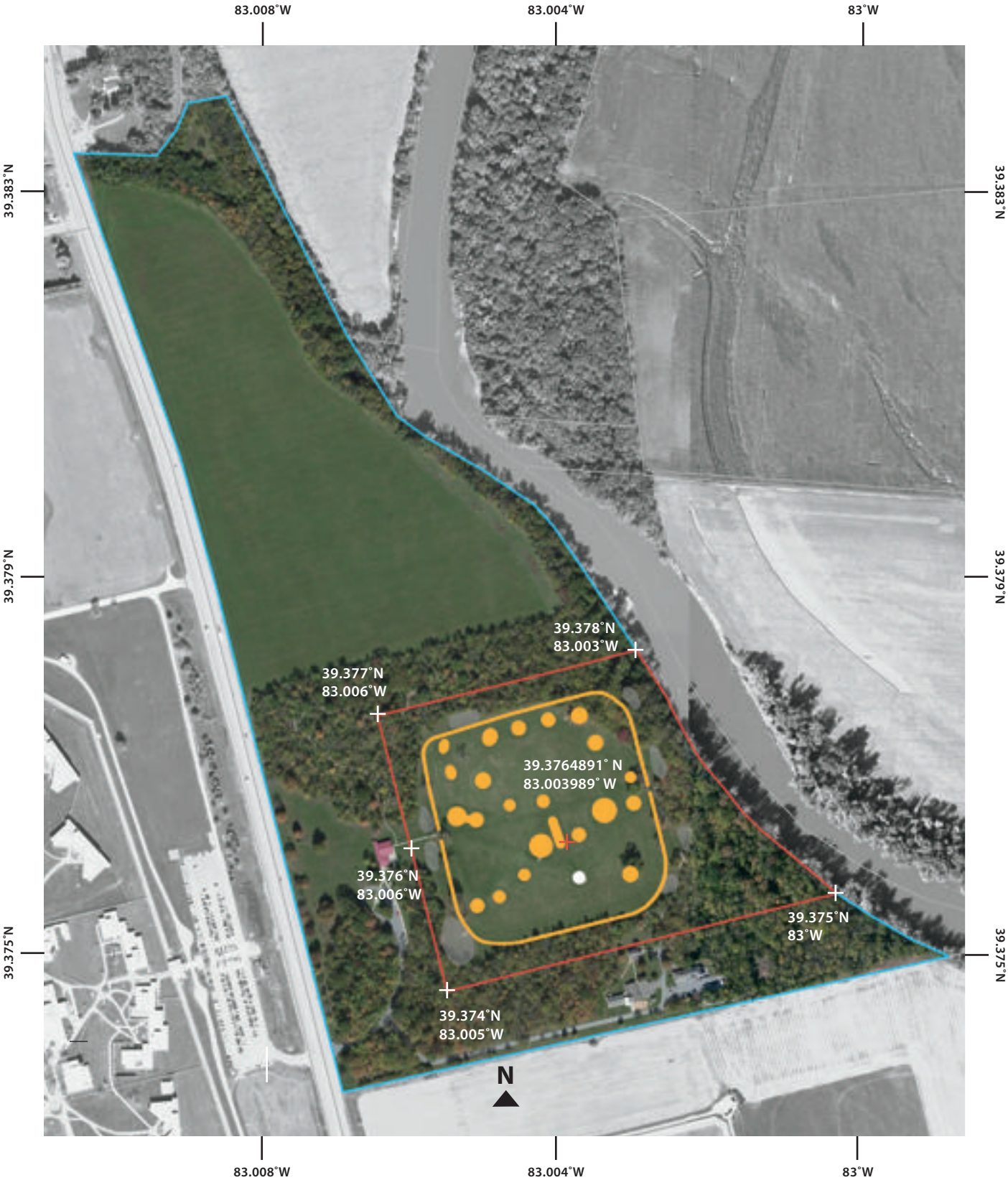

Mound City

Hopewell Ceremonial Earthworks

Above Grade
Below Grade
Depression/ Ponds/Pits
WH Boundary
WH Buffer
WH Boundary Center Coordinate

0 300 m

Projection: State Plane Ohio South
Datum: North American Datum 1983
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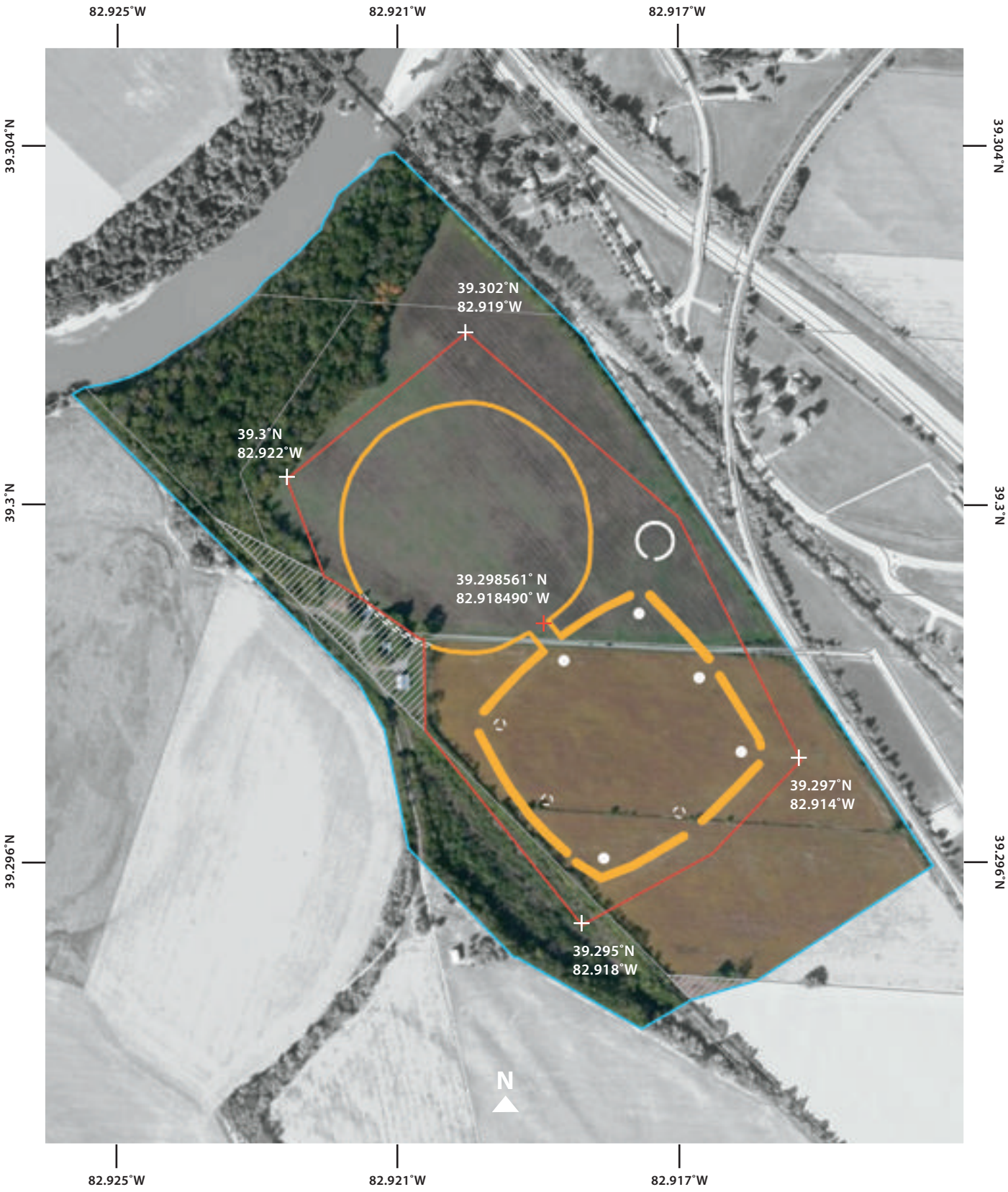
Ohio History Connection



0 300 m

- Above Grade
- Below Grade
- Lost/Inferred
- WH Boundary
- WH Buffer
- Private Land *within NPS Authorized Boundary*
- WH Boundary Center Coordinate

High Bank Works

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Hopewell Mound Group

Hopewell Ceremonial Earthworks

- Above Grade
- Below Grade
- Lost/Inferred
- Depression/ Ponds/Pits
- WH Boundary
- WH Buffer
- Private Land *within NPS Authorized Boundary*
- \+ WH Boundary Center Coordinate

0 — 500 m

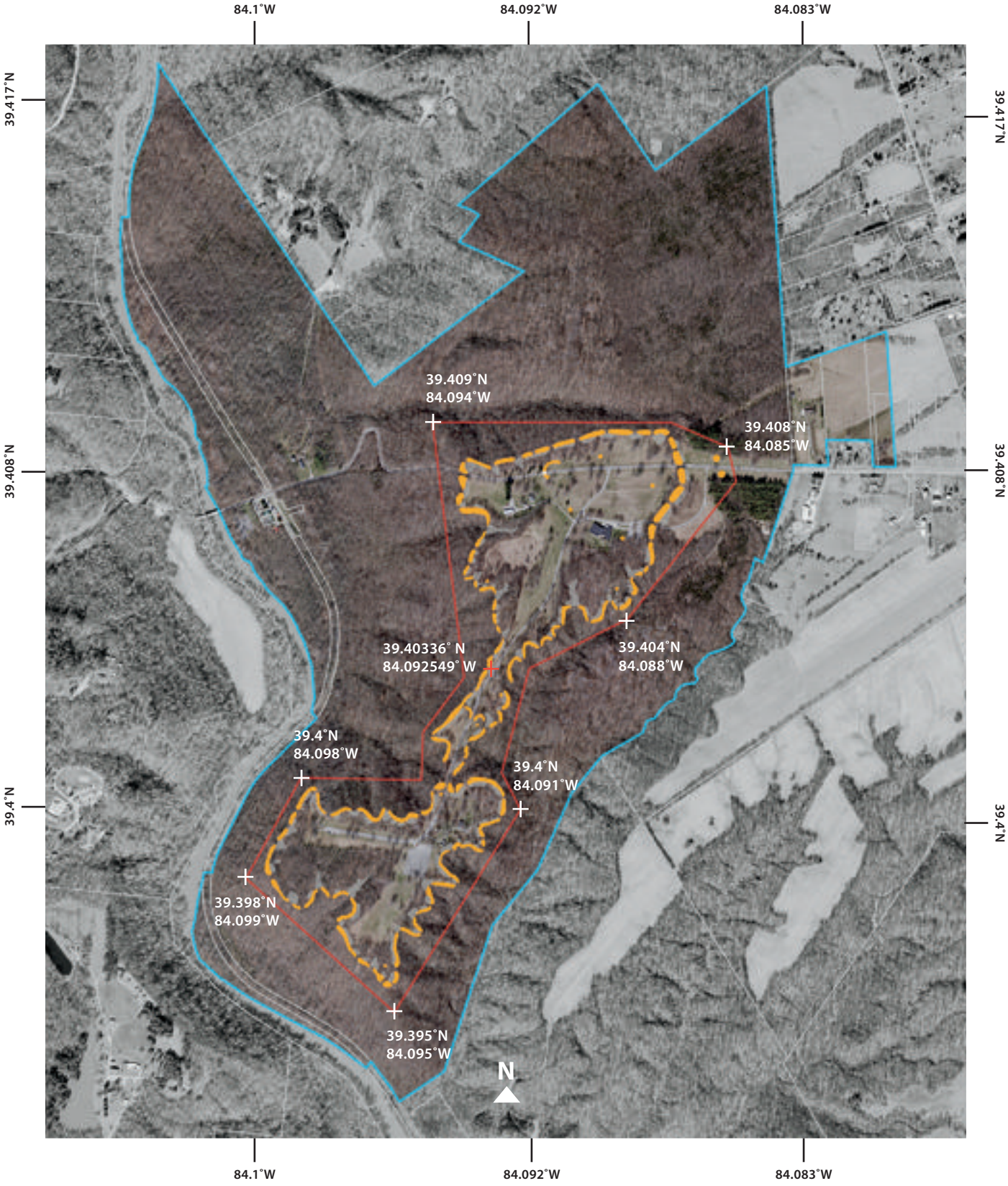
Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Seip Earthworks

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

Warren County



Fort Ancient

Hopewell Ceremonial Earthworks

Projection: State Plane Ohio South
Datum: North American Datum 1983
Production Date: November 2021
Ohio History Connection

1.f
Areas of Series Components & Buffer Zones

Area of Nominated Property:
320.7 hectares

Area of Buffer Zone:
561.8 hectares

Total:
882.5 hectares

Name of the Component Part	Coordinates of the Central Point		Area of Nominated Component of the property	Area of the Buffer Zone (ha)
	40.053657°	82.446061°	43.2	30.3
	40.0412328°	82.430119°	20.2	16.5
	39.384791°	82.979155°	22.7	80.4
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	39.298561°	82.918490°	26.0	30.4
	39.360984°	83.093372°	69.5	59.9
	39.237470°	83.219824°	56.2	107.3
	39.40336°	84.092549°	69.8	203.0
	Total Area (in hectares)		320.7	561.8

Section 2.a: Description

"Earth, and water that is always nearby or surrounding earthworks, and the changing and dynamic skies, had elemental power. Gathering up specific kinds of earth and precisely forming them into geometric shapes in a planned and purposeful way was an act of gathering power."

Marti L. Chaatsmith
Associate Director, Newark Earthworks Center
The Ohio State University at Newark
Citizen, Comanche Nation
Direct Descendant, Choctaw Nation of Oklahoma

Description of the Property

Physical & Geographic Setting

The geographic and ecological conditions of this region, and of the settings of these earthworks, result from the actions of glaciers that covered vast areas of northeastern North America in multiple episodes throughout the Pleistocene Epoch (Fig. **1**). Until the final glaciation, the ancient Teays River system flowed generally northwest across the Ohio region, draining the central Appalachian plateau before heading west towards the Mississippi (Fig. **2**). These huge rivers—the Teays and its tributaries—deposited the deep layers of gravelly soil which remain characteristic of all of the valley terrace earthwork sites. When the last Wisconsinan glacier retreated northward around 14,000 years ago, the reconfigured topography reversed the drainage in these wide, pre-glacial valleys. This formed newer, smaller, south-flowing rivers that drained into the newly cut Ohio River channel.

These tributaries included the Little Miami in southwestern Ohio, which, during this process, cut the deep gorge below Fort Ancient; the Muskingum, whose many branches lie in deeply dissected valleys draining hilly southeastern Ohio; and most dramatically

2.a-**1** Map showing the extents of the principal Pleistocene ice sheets in the north central United States, and their concentration across the state of Ohio.

2.a-**2** Map of Ohio and neighboring states, showing the northwesterly-flowing, pre-glacial Teays River and its tributaries; modern state boundaries and cities are shown for reference.

2.a-**3** The extent of glaciated areas in the state of Ohio (compare to Figure 1); locations of the nominated sites are marked in their respective counties.

the Scioto, which occupies the valley of the giant Teays River itself. For more than ten thousand years, these wide valleys have accumulated rich soil, laid over the sand and gravel till left behind by the glaciers and the ancient rivers. Their broad, level terraces are at different elevations—the higher ones created by the larger, ancient rivers, and the lower ones carved by today's rivers. The upper terraces offered perfect settings for the geometric earthworks, being essentially flat, high enough to escape flooding, and perfectly drained by their gravel-rich subsoils. Throughout the region, the distinctive combination of large, flat river terraces, with their prominent surrounding plateaus, hills, and ravines, created the prototypical conditions for the monumental earthwork building achievements of the Hopewell.

Besides blocking and reversing the region's ancient rivers, the last glaciers also flattened the contours of the broader landscape, and the line where that action ended is still prominent as a diagonal seam across the modern state of Ohio, dividing these glaciated Till Plains from the western extremities of the more rugged Appalachian Plateau. The Hopewell Ceremonial Earthworks are concentrated along this boundary (Fig. **3**), and the human cultures that flourished here benefitted from the exceptionally rich and diverse resources of these blended ecologies. This transition, visible in the abrupt rising of these hilly landscapes, presents itself most strikingly at today's Chillicothe, Ohio, but it is also evident at Newark, and in a comparable way among the deeply-carved ravines of the Ohio River's tributaries in southwest Ohio, as at Fort Ancient. In antiquity, the most extensive concentration of Hopewell earthworks was centered along the Scioto River, around and below Chillicothe, and in the adjacent Paint Valley and its North Fork to the west.

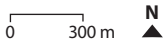
Components of the Nominated Property

The earthwork sites of the nominated Property constitute the finest surviving examples of hundreds of such enclosures built by the Hopewell culture across the central Ohio River Valley region during its fluorescence in the first four centuries of the Common Era. The nominated sites provide evidence of what was in antiquity a vast cultural landscape, where variations on consistent forms, types, figures, and units of measure reveal this culture's sophisticated abilities with geometry, astronomy, and earthen engineering, executed on a vast regional scale. These monuments are especially distinguished by their enormous size, geometric and formal precision, encoded astronomical knowledge, dazzling artifacts, rich archaeological deposits and remains, and broad geographic distribution. (The scale of this ancient cultural landscape is eloquently captured in the nineteenth-century maps created by Ephraim Squier and Edwin Davis, among others, several of which appear in Section 2.b and as Figs. **34** & **76** below. Their historical and documentary importance is discussed in Section 2.b, pages 131-132).

Built as places for ceremonial assemblies, often involving burials, these earthworks consist of embankment walls enclosing huge spaces, with carefully positioned and often-monumental gateways. They show a remarkable consistency of motifs and dimensions across the region. The nominated Property illustrates the full repertoire of Hopewell earthwork configurations: landform-based shapes, plus geometrically precise circles, squares (some with rounded corners), and octagons, in a variety of combinations (Fig. **4**). Many were built to standard dimensional units and related geometrical principles that were used across the region, and that conceptually link all of the component sites, in some way, to each other (See Fig. 3-**1**, page 201).

Hilltop and glacial terrace sites were used consistently, all located beyond the reach of floods, yet with prominent connections to water—present as naturally occurring rivers, streams, and springs, as well as specially constructed ponds. Besides the earthwork enclosures themselves, these ceremonial landscapes incorporate mounds, water features, and pavements as enduring architectural elements. In many cases, walls, mounds, gateways, and other features are aligned to the cyclical risings and settings of the sun and moon. The archaeological record also reveals evidence of substantial stone and timber constructions associated with the use and development of the sites, together with evidence of cultural practices including mortuary rituals. Archaeological excavation has also yielded significant numbers of artifacts of extraordinary artistic quality, made from raw materials obtained from across much of North America. The sites in the nominated serial Property, with their earthwork forms, associated features, and archaeological remains, vividly present the remarkable characteristics of the Hopewell culture. They are listed individually on the next page (Fig. **4**).

2.a-**4** Comparative sizes of the eight nominated Hopewell Ceremonial Earthworks.



The two northernmost nominated components are the principal surviving portions of what is known as the Newark Earthworks complex. The first of these is the Octagon Earthworks, comprised of two linked geometric figures enclosing an area of over 24 hectares. A precise circular enclosure and its adjoining open-cornered octagon have multiple lunar orientations.

The second Newark component is the Great Circle Earthworks. At 10.07 hectares, it is the largest and best preserved of the Hopewell circular earthworks. Evidence indicates that its interior ditch was engineered to hold water. The circular enclosure is entered from the northeast by an especially monumental gateway.

About 100 kilometers to the southwest, in the Scioto River Valley, the Hopeton Earthworks illustrate the combination of a circle and a square (in this case, with slightly rounded corners), enclosing a total of 15.16 hectares, with two adjacent smaller circles and a parallel-walled avenue. Hopeton appears to form a geographical and ritual pair with Mound City.

Mound City, lying just across the Scioto River from Hopeton, is the finest surviving necropolis of the Hopewell culture. A rounded-cornered square earthen wall encloses an area of 6.81 hectares, and the highest density of burial mounds of any Hopewell earthwork.

The High Bank Works, located 12 kilometers south of Mound City in the Scioto Valley, complements Newark's Octagon Earthworks with an identically sized circular enclosure linked to a smaller octagon, together enclosing 16.42 hectares and aligning to key positions of the solar and lunar cycles.

The Hopewell Mound Group is located eight kilometers west of Mound City in the small valley of the North Fork of Paint Creek. The largest of all Hopewell earthen enclosures, its combination of geometrical and landform elements enclose 55.34 hectares. Its many mounds were the repositories of the most spectacular assemblage of artifacts known from the Hopewell world.

The Seip Earthworks are in the Paint Creek Valley, 18 kilometers southwest of Hopewell Mound Group. Two large circles combine with a square to enclose a total of over 40 hectares. Seip presents a repertoire of shapes and sizes that were repeated at four other nearby earthworks which no longer survive.

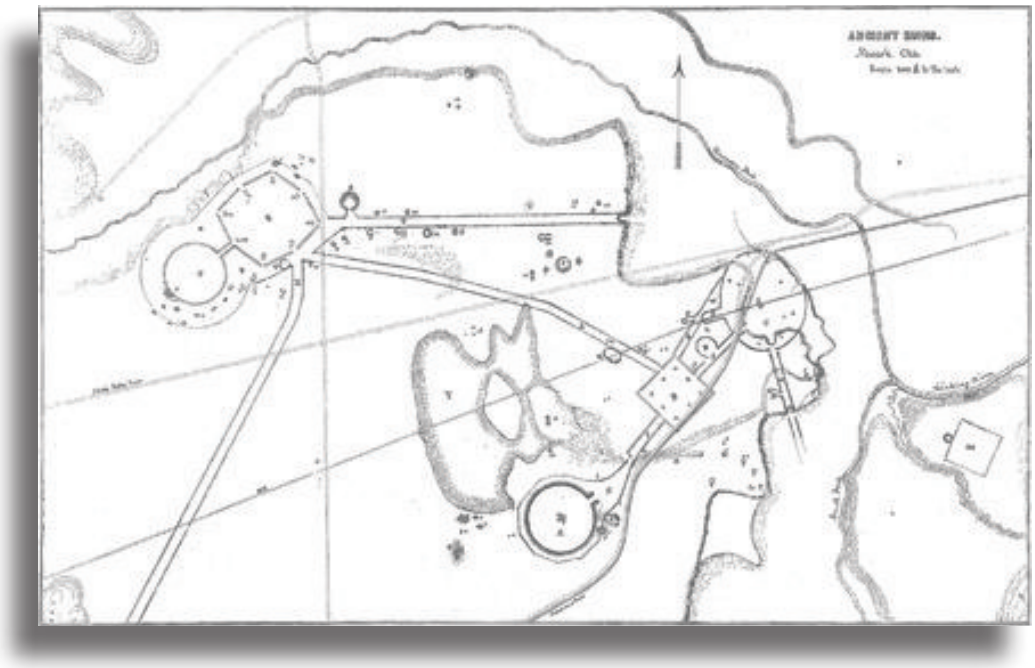
Fort Ancient crowns a high bluff overlooking the Little Miami River 80 kilometers west of the Seip Earthworks. At over 40 hectares, this component is the largest and most elaborate of the Hopewell hilltop enclosures. It encodes solar and lunar alignments, and exemplifies architectural techniques of building earth walls and water features in relation to the topographic conditions.

All elements described are located within the nominated Property Boundary unless otherwise indicated.

The Newark Earthworks

The two nominated components of the Newark Earthworks, the Octagon Earthworks and the Great Circle Earthworks, are located 100 kilometers north-northeast of the five components within Hopewell Culture National Historical Park, and 180 kilometers east-northeast of the hilltop enclosure of Fort Ancient. These two nominated earthworks constitute, respectively, the westernmost and the southernmost of the major elements of the original Newark Earthworks complex (Fig. **5**), and both share its overall topographic setting—a broad, roughly triangular, high glacial terrace approximately nine meters above the floodplain adjoining the confluence of Raccoon Creek and the South Fork of the Licking River. These rivers unite at Newark to become the Licking River, which flows eastward into the Muskingum River, in turn entering the Ohio River at modern Marietta. This large, level plain is surrounded by low, rounded sandstone hills.

The history of how these two components came to be the primary, well-preserved remains of the vast, 1,165-hectare Newark Earthworks complex is described below in Section 2.b as part of the historical development of the Property. Both stand today in park-like settings among small, suburban houses, with mature trees buffering much of their perimeters.



2.a-**5** James and Charles Salisbury's 1862 map of the Newark Earthworks, considered the most accurate of several nineteenth century surveys. It shows the ancient context of the Octagon Earthworks (at the upper left) and the Great Circle Earthworks (at the center bottom). (Courtesy American Antiquarian Society)

2.a-**6** *Opposite:* Aerial photo of Octagon Earthworks, oriented to its principal northeasterly lunar axis. (Newark Earthworks Center, Photo by Timothy E. Black)

2.a-**7** Southern wall of Newark's Octagon, looking east; its southeastern gateway and gateway mound are at left, the small circle is at right. (Photo by Bradley T. Lepper)

Location & Setting

The Octagon Earthworks are situated on a level terrace, bounded along its northwestern edge by a generally wooded escarpment overlooking the eastward-flowing Raccoon Creek. They are contained within a public preserve, leased and maintained by a private country club since 1910 and owned by the Ohio History Connection since 1933. The remainder of the site's perimeter is mainly characterized by one- and two-story suburban houses, set along narrow streets among mature trees.

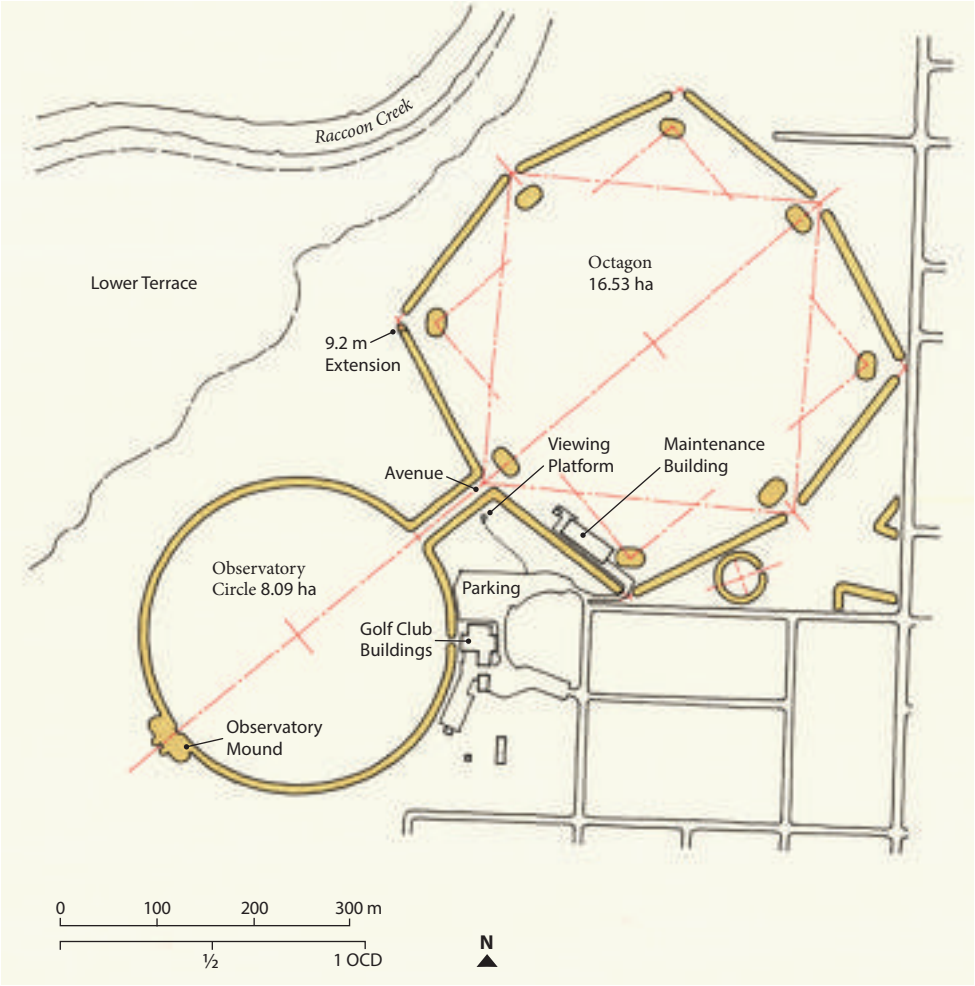
Scope & Form

The Octagon Earthworks consist of two geometric enclosures, a large circle and an even larger octagon, connected by an avenue formed by short parallel walls (Figs. **6** & **7**). The walls of the circle, called the Observatory Circle, are between one and two meters high (Fig. **8**). The circle has a diameter of 321 meters, and an area of 8.09 hectares. Directly opposite the parallel-walled avenue, along the southwestern rim of the circle, there is a break in the circular wall where two parallel extensions originally projected outward, forming a gateway. This former gateway (Fig. **9**) is covered by a large, earth and stone platform mound called the Observatory Mound. It stands 3.6 meters high, or 2.4 meters

higher than the embankment of the Observatory Circle at this location. It is 20 meters wide and 51 meters long at its base. The Observatory Mound marks the start of the Octagon Earthworks' principal axis, through the parallel walls of the avenue, across the Octagon, toward the moon's northernmost rise point on the distant horizon.

2.a-**8** The Observatory Circle of the Octagon Earthworks, showing its southern arc in the left foreground, and the taller Observatory Mound in the center distance.

2.a-**9** Detail of the Observatory Mound, where it crosses over the parallel walls of the Observatory Circle's former gateway, creating a small notch.



2.a-**10** Architectural plan of the Octagon Earthworks, showing its precise form and geometric derivations (see page 52). Based on data from LiDAR, United States Geological Survey, and satellite imagery.

2.a-**11** View of the avenue, showing the parallel walls on either side, looking from the Observatory Circle toward the Octagon and one of its gateway mounds. (Photo by Bradley T. Lepper)

The parallel walls of the avenue leading from the Observatory Circle to the Octagon are 27 meters apart and 90 meters long (Fig. **11**). They are just under two meters high and form a continuous angle with the two adjacent walls of the Octagon, which are each 168 meters long and remarkably consistent in their 1.5–1.8-meter height. The six remaining wall segments of the Octagon (Fig. **12**) are very nearly identical in their dimensions and together enclose an area of 16.53 hectares. The seven remaining corners of the Octagon are formed by open gateways that vary in width between 15 and 27 meters. Just inside each of the eight gateways are oblong platform mounds, 30 meters by 24 meters in area, and just over two meters high—making them somewhat wider than their corresponding gateways, and somewhat higher than the adjacent walls (Fig. **13**).

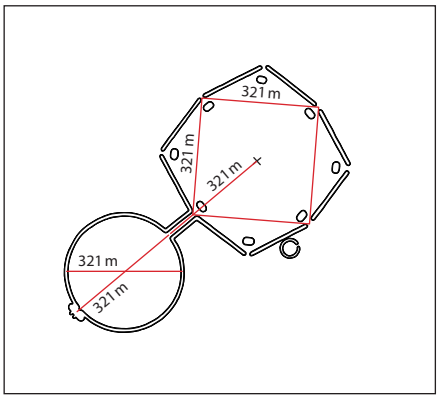
2.a-**12** Interior of the southernmost wall segment of the Octagon, showing its perfect form and its height matched to human eye level.

2.a-**13** The Octagon's southeastern gateway, at left, with its interior mound, far right.

Geometry & Astronomy

The Octagon Earthworks exhibit an astonishing formal precision and dimensional unity. The Observatory Circle is within 0.6 meter of the ideal circumference of a perfect circle with its 321-meter diameter. The distance from the Observatory Mound to the center of the Octagon, along the site's principal axis, is equal to exactly two times the Observatory Circle's diameter (Fig. **14**). The sides of an imaginary square, inscribed diagonally inside the Octagon and connecting its primary axial and cross-axial gateways, has this same dimension (within 0.25 percent). From each of the four corners of this inscribed square, the three opposite octagon gateways are all equally distant (at 454 meters). This same square, if rotated 45 degrees, would mark the centers of the mounds standing inside the Octagon's other four gateways.

This diameter (321 meters) is now abbreviated as the "OCD," and is evidently the multiple of a standard—though still unknown—unit of Hopewell measurement used across the region. The presence of the OCD will be noted in some form at all but one of the other earthwork sites in this nominated series (See Section 3.1); it was also used as a circle diameter at two other now-lost earthworks in the Scioto valley—Circleville and Seal Township.



2.a-**14** Diagram showing how the 321-meter Observatory Circle Diameter (OCD) constructs and connects the two figures of the Octagon Earthworks.

Newark in particular also shows evidence that the earthwork builders were able to draw the entire complex into an astonishing mathematical unity, matching the areas and perimeters of unlike figures, including squares, circles, and octagons. These relationships (which also involved the now-vanished Wright Square) are described below in connection with the Great Circle Earthworks (See pages 63–64, and Fig. 2.b-**13**, page 137).

Alignments among the Octagon Earthworks' principal walls, axes, and corners, encode knowledge of six of the extreme lunar rise and set points along the eastern and western horizons, as observable from this specific latitude (Fig. **15**). The most prominent alignment is with the northern maximum moonrise—observable over a few consecutive months every 18.6 years—along the site's principal axis. Viewed from the Observatory Mound, this moonrise position will appear along the centerline of the parallel-walled avenue, and

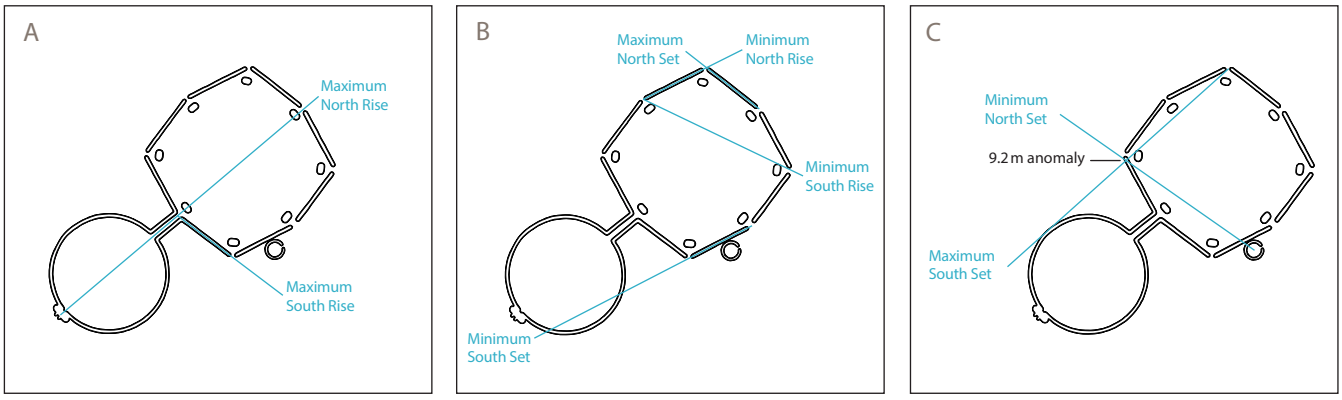
above the far gateway of the Octagon, within 0.2 degree (Figs. **15-A** & **16**). The maximum southern moonrise aligns perfectly along the southwestern wall of the Octagon, viewed from the corner where it joins the avenue. Three other lunar standstills align with three of the Octagon's other northern and southern walls (Figs. **15-B** & **17**). The last of these six alignments is the minimum southern rise, appearing above the eastern gateway when viewed from the northwestern apex.

The Octagon's marking of the two remaining lunar standstills is less obvious. Nineteenth century surveys recorded that the Octagon's west-southwestern wall (the one adjoining the avenue) was 9.2 meters shorter than its symmetrically placed counterpart—the only distortion of the earthwork's otherwise perfect symmetry. Restoration teams at the turn of the twentieth century felt the need, understandably, to "correct" it. But the endpoint of this wall, in its original position, established the two remaining alignments (Fig. **15-C**). The moon's maximum south set aligns from the northern apex, across this point, and tangent with the Observatory Circle. The minimum northern moonrise aligns across this point from the center of the small circle just outside the Octagon's southern perimeter. Had the wall been its "proper" length, these alignments would have been absent.

2.a-**15 A:** Diagram of the two principal lunar alignments encoded in the basic geometric form of the Octagon Earthworks.

B: Diagram of the four remaining lunar alignments encoded in the Octagon's primary walls and gateways.

C: Diagram of the two lunar alignments encoded by the "anomaly" of the 9.2-meter shorter west-southwestern wall. (After Hively and Horn)



2.a-**16** Computer rendering of the maximum northern moonrise, aligned with the central axis of the Octagon Earthworks. (The Ancient Ohio Trail)

Archaeology & Artifacts

Due to its history of use as a golf course, few archaeological investigations have been undertaken at the Octagon Earthworks or in their immediate vicinity. Features revealed to date are limited to one large basin, with a central posthole, beside the southernmost gateway mound. (An 1815 map, shown in Fig. 2.b-**19** on page 142, identified such features at seven of the openings, but archaeological investigations have so far confirmed only one.) Apart from the scattered intrusions from the site's past use as a golf course—such as a maintenance building, waterlines, and sand bunkers—and a shallow nineteenth-century plow zone across the northern portions of the site, the walls and interior spaces of the earthwork are relatively intact. As a result, and given the Octagon Earthworks' minimal restoration, future investigations will almost certainly yield more insights about the site and its builders.

No artifacts are known to have come from the Octagon Earthworks. One full-grooved stone axe was found in Raccoon Creek below the site over a century ago. It dates from at least four millennia before the earthworks, and is in the collections of the Ohio History Connection.

2.a-**17** Time-lapse photograph of the minimum southern moonrise (December 2015), aligned with the crest of the south-southeastern wall, visible in the bottom center of the image. (Newark Earthworks Center, Photo by Timothy E. Black)

Modern Structures

Besides the earthworks, two other major structures are within the nominated Boundary. The golf clubhouse, built in 1964 (on the site of the original clubhouse from 1911), is a two-story, neo-Georgian brick building (Fig. **18**), with an adjacent swimming pool, parking lot, and driveway. Its gabled rear elevation stands within 6.2 meters of the southeastern rim of the Observatory Circle. During its construction, a 30-meter section of the circle was displaced approximately 4 meters inward. A maintenance equipment storage building stands inside the southern corner of the Octagon, measuring 14 by 46 meters. It is a steel-framed, metal-clad structure with a low-sloping metal roof. A small, elevated wooden viewing platform near the corner formed by the parallel-walled avenue and the southwestern Octagon wall offers visitors a view into a portion of the enclosure. A path leads to it from parking spaces designated for earthwork visitors. Minor landscape interventions created over the years as part of the golf course include irrigation pipes, small earthen tee platforms, sand-filled bunkers (Fig. **19**), and a few additional asphalt-paved pathways. (Section 5 describes anticipated management actions following the end of golfing at the site.)

Boundary & Buffer Zone

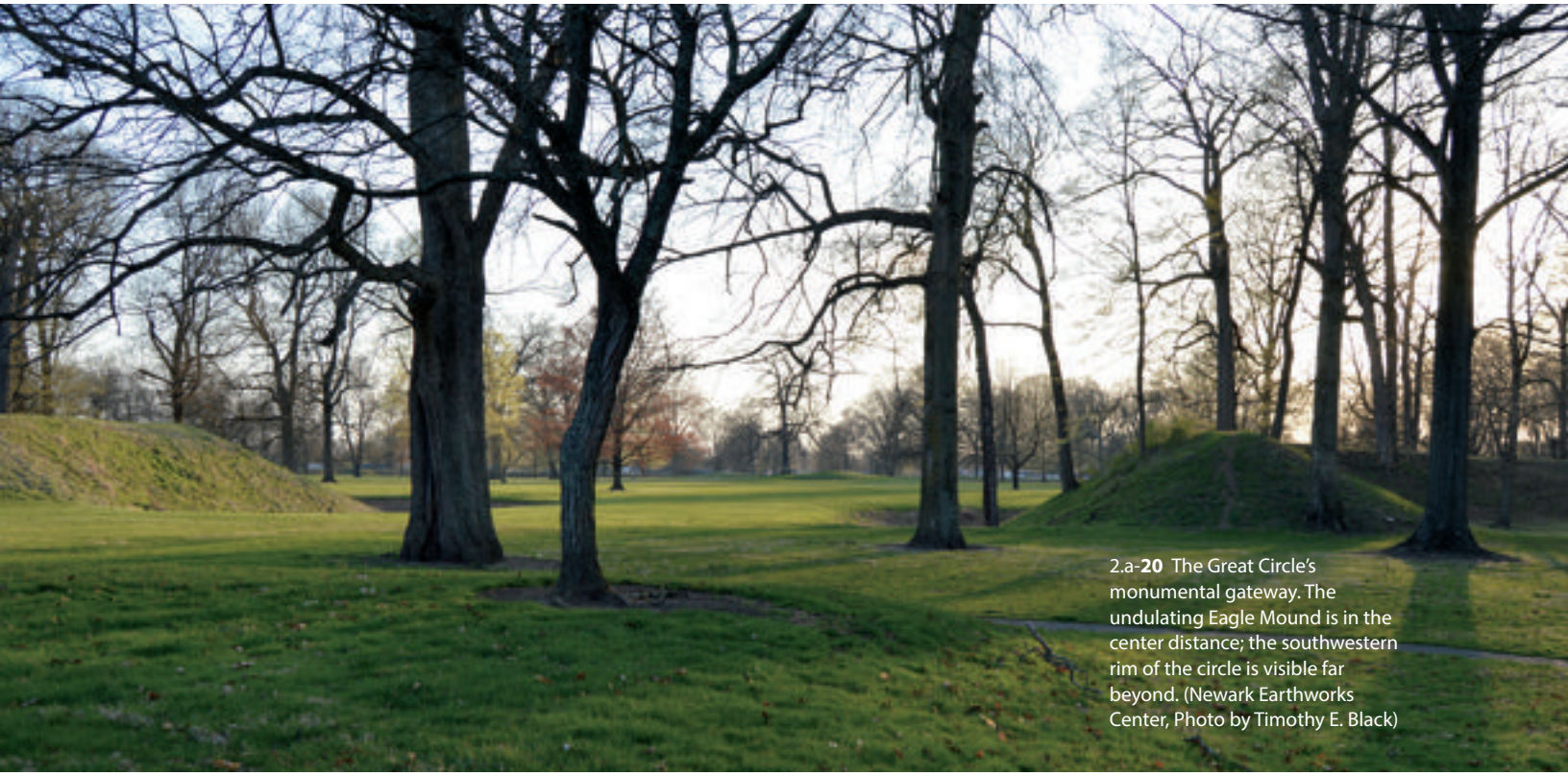
The World Heritage Boundary of the Octagon Earthworks encompasses all components necessary to convey the site's Outstanding Universal Value. These include the Observatory and gateway mounds, plus the walls of the two large enclosures, with an exterior margin wherever possible of 10 meters to include possible wall-associated archaeological remains. (Throughout all of these boundary descriptions, such "margins wherever possible" will be proportional to the extent of wall degradation and intended to encompass the spreading of their upper soil layers over time; here there is very little.) The Boundary also takes in the small circle and two intact remnants of parallel walls at the southeastern edge of the site.

The Buffer Zone of the Octagon Earthworks is configured to retain the overall park-like setting of the principal earthworks, including the adjacent riverbank and the modestly scaled, non-intrusive character of the adjacent neighborhood of single-family dwellings. It therefore consists of the remainder of the property owned by the Ohio History Connection, the riparian corridor on the south side of Raccoon Creek, and all immediately adjacent residential parcels. These residential areas lie within zoning designations ensuring the continuation of the present residential character, and preventing the construction of larger structures or other land uses.

Beyond the Buffer Zone, the same zoning restrictions extend further into the surrounding residential areas.

2.a-**18** The golf club building, a paved cart path across the earthwork, and a tee platform at center left.

2.a-**19** Golf green and sand bunker near the avenue (foreground); the Octagon enclosure is at far right.



2.a-**20** The Great Circle's monumental gateway. The undulating Eagle Mound is in the center distance; the southwestern rim of the circle is visible far beyond. (Newark Earthworks Center, Photo by Timothy E. Black)

Location & Setting

The largest and best preserved element of the original Newark Earthworks complex is the Great Circle (Fig. **21**). It is located 2 kilometers southeast of the Octagon Earthworks on a broad terrace edge overlooking the South Fork of the Licking River to the east, with steep wooded hills beyond. It is contained within a public preserve operated by the Ohio History Connection. The site is bounded on three sides by residential streets lined with mature trees and small houses. There is low-rise commercial development along State Route 79 to the south of the site, mostly out of view.

Scope & Form

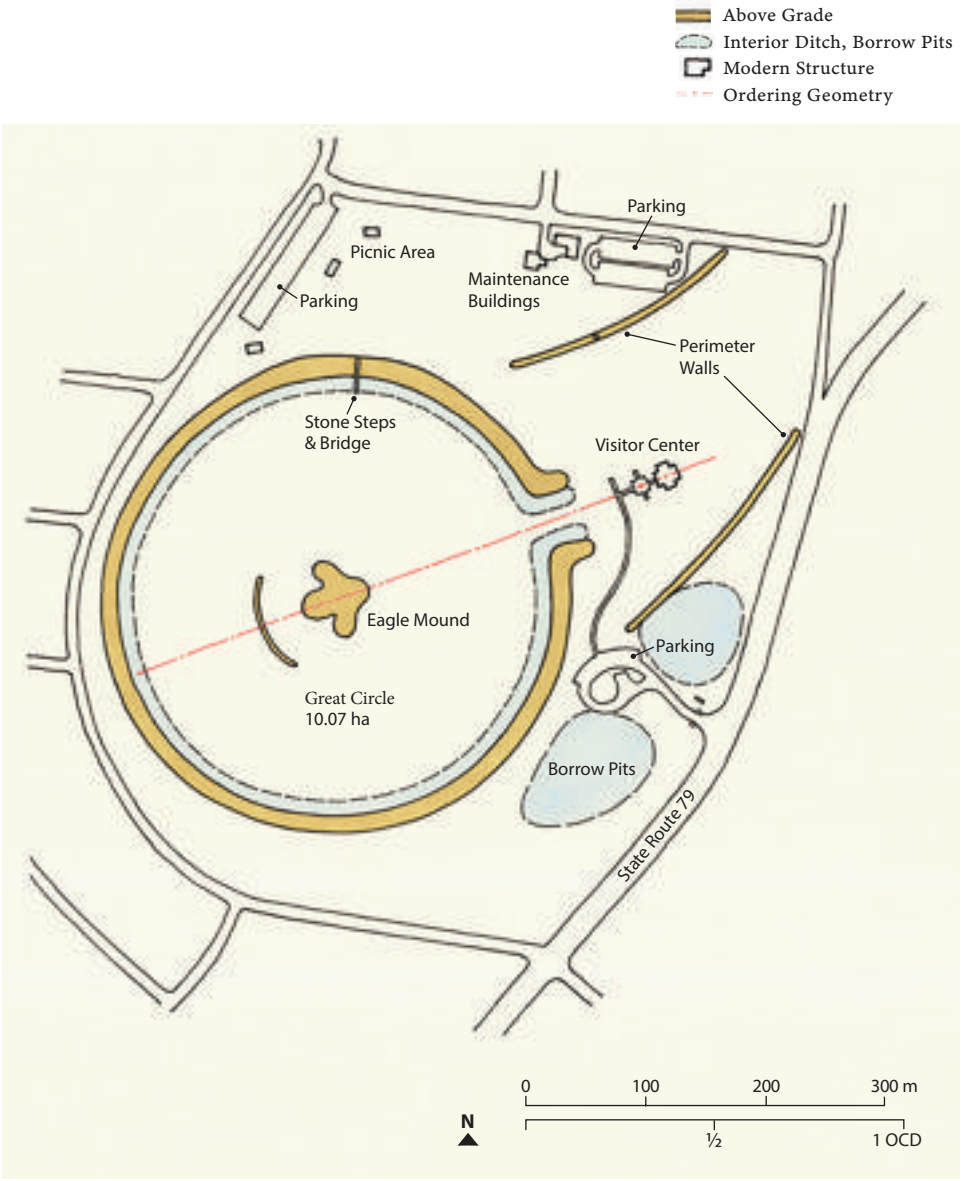
The Great Circle at Newark is one of the largest individual geometric enclosures built by the Hopewell culture; it is 358 meters in diameter and encloses 10.07 hectares. The wall varies in height from 1.5 meters, along its southwestern portion, to five meters at the points where it angles outward to form the monumental northeastern gateway (Figs. **20** & **23**). A ditch follows along the inner edge of the wall , between 8.5 and 12.5 meters wide and two to four meters deep; the depth of the ditch generally corresponds to the height of the adjacent wall. The interior faces of the ditch and wall form a continuous surface, substantially increasing the apparent scale and impact of the earthwork (Fig. **22**). Investigations have shown that the soil types used for the interior of the wall are of a yellowish color, strikingly different

2.a-**21** Aerial view of the Great Circle Earthworks. (Newark Earthworks Center, Photo by Timothy E. Black)

from the brown soils of the wall's exterior surface. The ditch retains evidence of a clay and stone lining, apparently intended to help it hold water, at least intermittently. The width of the monumental gateway, between the crests of its defining walls, is 60 meters. The corresponding ditches sharply define an entrance area 18 meters wide and 50 meters long (Fig. **23**).

2.a-**22** Interior of the Great Circle, showing the ditch and embankment, looking north from the center of the monumental gateway.

2.a-**23** View across the monumental gateway of the Great Circle, looking west.



2.a-**24** Architectural plan of the Great Circle Earthworks. Based on data from LiDAR, United States Geological Survey, Ohio History Connection (1891 survey), and satellite imagery.

At the center of the Great Circle is a large, conjoined mound known as Eagle Mound for its symmetrical, somewhat winged shape (Fig. **25**). An excavation in 1928 revealed the posthole pattern of a large building beneath the mound, and was followed by the mound's restoration to the original dimensions recorded by Squier and Davis in the 1840s. Its tallest, central section is two meters high; its other three lobes are each about 1.5 meters high at their crests. It is 47 meters long and 61 meters wide from one wing tip to the other. At a distance of 35 meters behind the "tail" of this mound, an 80-meter crescent remains from the time of the mound's reconstruction, based on the records of Squier and Davis. No evidence has confirmed it is of Hopewell origin.

In the preserved parkland to the north and east of the Great Circle stand two restored segments of the continuous system of low perimeter walls that once encircled the entire Newark Earthworks complex, as depicted on the Salisbury map (Fig. **5**). The northern segment (Fig. **26**) is about 168 meters long, while the eastern one (Fig. **27**) is about 122 meters. Both are about 0.4 meter high. These wall segments converge toward the northeast (in the direction of the Wright Earthworks, now mostly lost but described below in Section 2.b).

2.a-**25** Undulations of the restored Eagle Mound, its right "wing" at far left and its "tail" in the center right distance.

2.a-**26** The restored perimeter wall in the park north of the Great Circle; the exterior of the Great Circle itself is in the background, with its gateway to the left.

2.a-**27** The restored eastern perimeter wall, with the northern, deeper borrow pit just beyond.

Also within the property boundary, two large borrow pits dominate the area to the southeast of the Great Circle, adjacent to the current parking area; the one to the north is the more pronounced today (Fig. **27**). They were the likely source of the yellowish soil used for the interior of the earthwork.

2.a-**28** Overlay of the Salisbury map indicating the corresponding area and circumference relationships at the original Newark Earthworks complex (including the Wright Square). Blue and yellow show equal areas, and red shows equal perimeters.

Geometry & Astronomy

The area of the Great Circle is equal to that of a square with a side of 321 meters (the OCD; the imaginary square inscribed in the Octagon), within 0.8 percent (Fig. **28**). The center of the Great Circle is six OCDs from the center of the Observatory Circle of the Octagon Earthworks, within 0.33 percent. (As further evidence of the whole Newark complex's overall unity, six OCDs also separated the centers of the Octagon and the Wright Square; the perimeter of the Wright Square was equal to the circumference of the Great Circle; and the area of the Wright Square was equal, within 0.6 percent, to the area of the Observatory Circle.)

A line connecting the center of the Great Circle (also the center of the Eagle Mound) with the axis of the monumental gateway points toward an azimuth of 69.15 degrees east of north. This marks the cross-quarter sunrises, dates in the solar calendar midway between the solstices and equinoxes. (The May 5 cross-quarter date is important in agricultural calendars as a good time for planting.)

Alignments also occur across the far-flung elements of the Newark complex. The center points of the Great Circle and the Octagon Earthwork's Observatory Circle (six OCDs apart) define an alignment to the maximum southern moonrise. The points at which the principal axis of each of these circles crosses its perimeter also define lines precisely parallel with this alignment. (An equivalent synchronization and lunar alignment were true of the Octagon and the now-vanished Wright Square. See Fig. 2.b-**13**, page 137.)

Archaeology & Artifacts

Though relatively few, the archaeological investigations in and near the Great Circle have added important knowledge about timber ceremonial buildings, the coloration and application of soils in the circular wall, the water-retaining methods used in its interior ditch, and the nature of the environment at the time the earthwork was built. With only a small fraction of the site having been explored, and given its excellent state of integrity, the Great Circle Earthworks will continue to offer new testimony to the knowledge and culture of its builders.

Very few Hopewell-era artifacts have been found at the Great Circle. Two copper ornaments, a beaver and a crescent, were found on the floor of the Eagle Mound building; otherwise only a grooved axe and a copper celt are from the interior of the circle. These items are on display at the Ohio History Connection's museum at the Great Circle. They reflect the ceremonial nature of the activities that took place within the timber structure that preceded the construction of the mound, and bear testimony to the far-flung sources of materials for Hopewell artistry. (Most other artifacts recovered from the area are associated with the entertainment venues that occupied the site in the nineteenth and early twentieth centuries.)

Modern Structures

Within the Property Boundary, a small parking lot occupies a position between the borrow pits to the southeast of the Great Circle (Fig. **29**) and an asphalt pathway leads to the museum. The museum building itself is a small, brick-clad, flat-roofed structure located just outside and in alignment with the Great Circle's northeastern gateway (Fig. **30**). In front of its entrance, a 2-meter diameter cast bronze model of the entire Newark Earthworks complex is mounted on a low, concrete platform and surrounded by a paved area. Other facilities within the Boundary include a stone bridge and steps over the northern section of the Great Circle ditch and embankment (Fig. **31**), and a small set of stone steps built over the northern perimeter wall nearby.

2.a-**29** View of the Ohio History Connection's sign at the Great Circle's highway entrance. To the left is the parking area with the earthwork beyond; to the right is the borrow pit with the Museum beyond, among the trees.

2.a-**30** The Museum Building, showing the bronze model and the paved area in front.

2.a-**31** The stone staircase and accompanying bridge crossing the northern arc of the Great Circle's embankment wall and ditch.

Boundary & Buffer Zone

The World Heritage Boundary of the Great Circle Earthworks encompasses all components necessary to convey the site's Outstanding Universal Value. These include the circular embankment wall and its interior ditch, plus the Eagle Mound at its center. An additional margin of at least 15 meters (from the earthen wall's center-line) is included to encompass possible archaeological remains from the wall's degradation over time. The large borrow pit area to the east of the Circle is also included in the Boundary, as are the two restored sections of perimeter wall to the northeast.

The Buffer Zone is configured to retain the overall park-like setting surrounding the principal earthwork (Fig. **32**), plus the modestly scaled, non-intrusive character of the adjacent neighborhood of single-family dwellings, and the belt of mature vegetation screening the road to the east. It therefore includes the remainder of the property owned by the Ohio History Connection, extending to the surrounding streets. Park structures in the Buffer Zone include a 1930s one-story, gable-roofed, wood frame caretaker's dwelling, now used as an educational facility. It shares a parking lot with the nearby garage and shop, which is a similar structure with a gabled roof and beveled siding. This northern expanse of park land also contains a small concrete block building with restrooms, and two picnic shelters.

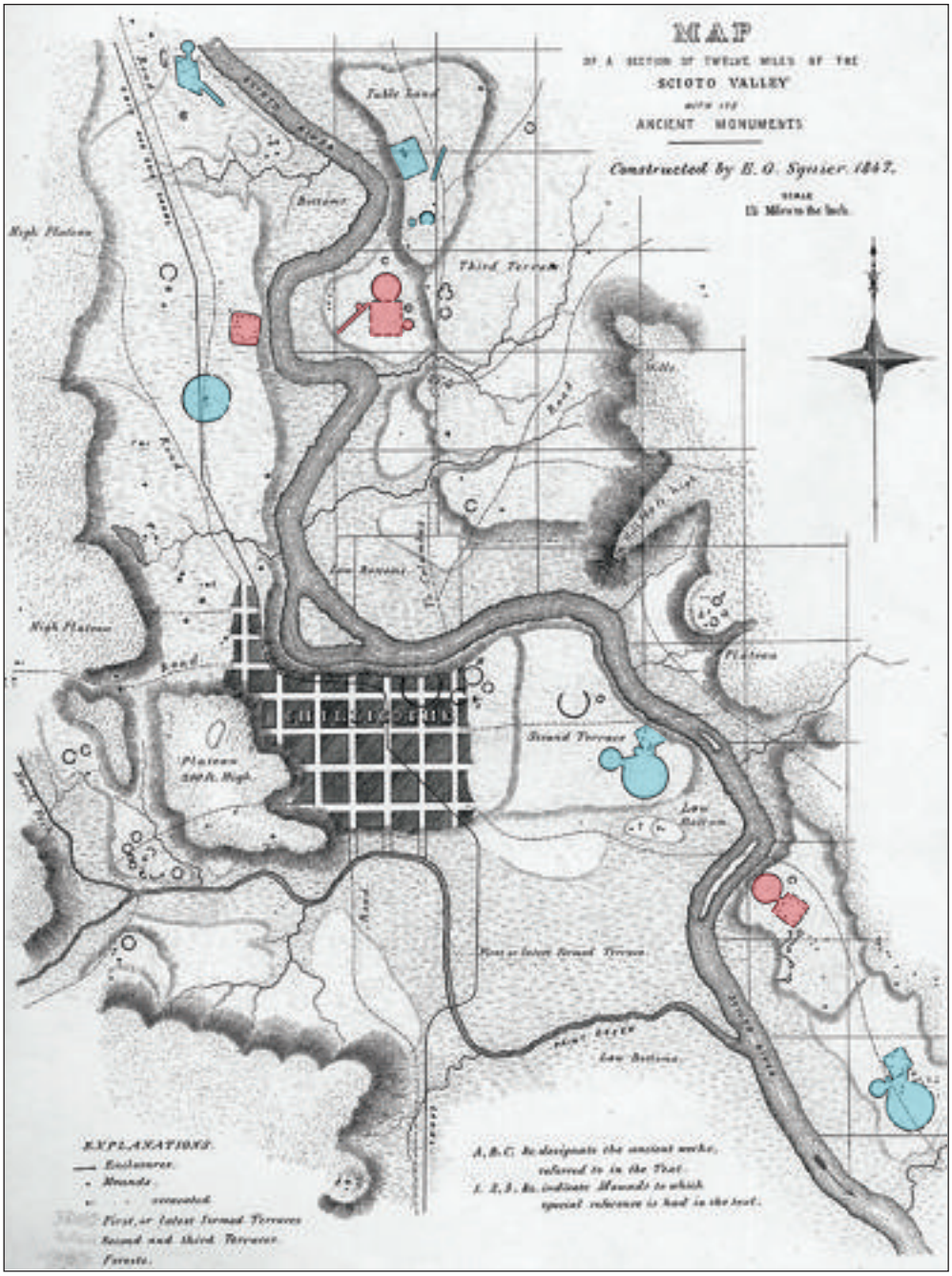
Beyond that to the north, an additional area one residential lot deep is included in the Buffer Zone and subject to the residential zoning restrictions of the City of Newark. A similar sized band follows the site's perimeter on the west and south, and falls within a zoning overlay district enacted by the City of Heath, ensuring that the current, compatible viewsheds from the site (small-scaled dwellings and large trees) will be maintained. As described below in Section 5, these zoning codes ensure the continuation of the present residential character and prevent the construction of larger structures or other land uses.

2.a-**32** Northern area of the Great Circle's park setting, showing the buffering effect of trees and the scale of surrounding development; the circle's exterior is at left.

2.a-**33** Aerial photo of the National Park Service's interpretive mowing at Hopeton Earthworks. (Photo by First Capital Aerial Media)

Location & Setting

The Hopeton Earthworks stand on a large terrace encircled by a horseshoe bend of the Scioto River, 80 kilometers north of its confluence with the Ohio. The Scioto is the largest of the southward flowing tributaries in the Hopewell heartland, and between Chillicothe and the Ohio River, it occupies the wide valley of the ancient, pre-glacial Teays River, with prominent forested hills on both sides. Hopeton is one of several large geometric earthwork complexes more-or-less evenly spaced along an 18-kilometer section of the Scioto, all of which were built on wide glacial outwash terraces above the reach of floods (Fig. **33**). A higher terrace rises behind the earthworks to the east. Along with the next four nominated components described below, Hopeton is a unit of Hopewell Culture National Historical Park. It stands today within a predominately rural setting despite the presence of a construction materials facility to the west, and a railway line and embankment to the east. From most vantage points, the visitor is isolated from the noise and intrusions of the modern world, as grasslands, croplands, and riparian vegetation dominate the landscape. Mound City is situated directly across the Scioto River from the Hopeton Earthworks (Fig. **34**).



2.a-**34** Squier and Davis's 1847 map showing Hopewell geometric earthworks in the Chillicothe, Ohio, vicinity. Nominated sites are in red. Hopeton and Mound City stand across from each other near the top. High Bank Works is at the lower right.

Scope & Form

The architecture of the Hopeton Earthworks is dominated by two immense geometric enclosures—a large, irregular square with rounded corners and a slight outward curvature in its northeastern face, and a more nearly perfect circle slightly overlapping it. These two figures have nearly equal areas, and together encompass 15.16 hectares. Faint traces remain of two ancillary earthworks—a pair of parallel linear embankments originally stretching for more than 730 meters toward the Scioto River, and two small circular ditch-and-bank enclosures, 60.9 meters and 76.2 meters in diameter, with gateways facing into the northeastern side of the square.

The walls of the square at Hopeton were measured in the mid-nineteenth century as nearly 3.7 meters high and 15.2 meters wide at the base. Their broad, level summits could, in the words of Squier and Davis, "admit the passage of a coach." Today these walls are much reduced by plowing (Fig. **35**), but they can be readily traced on the ground; a portion in the southeast corner retains more than two meters of relief, though the soil is spread out to an approximate width of 24 meters. A section at the northwest corner retains a very distinct form (Fig. **36**). Even in their degraded state, the walls of the square at Hopeton contain clear evidence of their construction sequences, materials, and profiles. A landscape planting and mowing program maintained by the National Park Service provides a clear visualization of the walls.

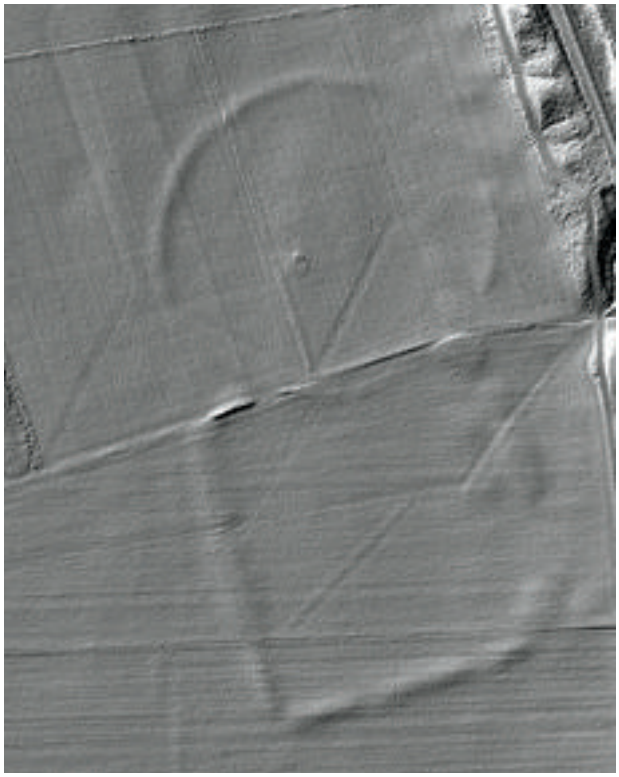
The earthen wall of Hopeton's large circle is composed of clay and was recorded in the mid-nineteenth century as averaging 1.5 meters in height. The western and northern sections of the circle are traceable on the ground today, though not easily. Geomagnetic survey work in 2016-17, in cooperation with the National Park Service and the Deutsches Archäologisches Institut (Fig. **37**), revealed the precise foundations of the walls, plus a series of large (circa one meter in diameter), regularly spaced postholes ringing the interior of the circle, likely the trace of a monumental circle of timber posts—a woodhenge. The magnetic signature of a narrow ditch follows the outer edge of the large circle embankment. LiDAR also indicates the surviving topographic character of the principal enclosures (Fig. **38**).

2.a-**35** Hopeton Earthworks from near the visitor wayside, showing the southern half of the square; undulations in the road, as well as the mowing patterns, indicate the form of the earthwork.

2.a-**36** The best-preserved portion of Hopeton's square, near its northwestern corner, looking west.

2.a-**37** Hopeton Earthworks magnetometry data, showing the precise locations, widths, and foundations of the earthen walls and other features still extant beneath the surface. (National Park Service and Deutsches Archäologisches Institut)

2.a-**38** Hopeton Earthworks LiDAR Image, showing the current surface expression of the walls. (Andrew Weiland, National Park Service)



Also within the Boundary at Hopeton are remains of the long parallel walls stretching toward the southwest, beginning near the northwestern corner of the square. Visible in historical aerial photographs, and confirmed by geomagnetic surveys in 2013 and 2016, they are spaced 45.7 meters apart. They were less than a meter tall in Squier and Davis's day, and are not visible on the surface today.

Geometry & Astronomy

The "square" at Hopeton is actually an irregular rectangle with overall dimensions of 274.3 meters by 289.6 meters. The cross-axial width of the large circle at Hopeton is one OCD. The square is composed of 11 distinct segments separated by gaps or gateways averaging 7.62 meters in width. The large circle attains a greater perfection than the square, yet is actually an ellipse.

The northwest to southeast diagonal of Hopeton's large square aligns with both the summer solstice sunset and the winter solstice sunrise. The southwesterly alignment of the recorded path of the parallel walls is within less than one degree of the winter solstice sunset.

2.a-**39** Architectural plan of Hopeton Earthworks. Based on data from magnetometry, LiDAR, aerial and satellite photography, and Squier and Davis.

Archaeology & Artifacts

Of all these nominated earthworks, Hopeton has seen the most intensive and sustained field investigations, with the National Park Service leading efforts in most years since 1994. In the 2000s, excavations illuminated many details of wall construction methods and materials. More recently, following extensive remote sensing surveys, targeted excavations have field verified significant features such as the large circle's associated timber posts. With more radiocarbon dates than any other Ohio Hopewell site, and so much known to be intact in the ground, Hopeton will continue to play a significant role in the understanding of earthwork construction sequences and methods.

Hopeton is a non-mortuary site, so excavations here have mainly revealed earthwork construction and cooking features. The wide range of artifacts are not the fine artistry of the mortuary sites (such as Mound City, Hopewell, or Seip), but are instead fragments of craftwork and the debris of domestic or feasting activity, including projectile points and knives, Hopewell bladelets, and plant and animal remains from cooking activities. Material culture from Hopeton sheds light on how people lived nearly 2,000 years ago, rather than how they treated their deceased. Hopewell Culture National Historical Park curates 52 related accessions, totaling nearly 50,000 objects, from strategic surface collection and excavation at Hopeton.

Modern Structures

A farm road crosses the lower portion of the square at Hopeton. There are no other modern structures within the World Heritage Boundary other than a trail adjoining a small, circular observation area overlooking the earthworks from the high ground along its eastern edge. Large blocks of local Berea sandstone installed there encircle a vantage point from which to view the site (Fig. **40**).

2.a-**40** View of Hopeton Earthworks from the visitor wayside viewpoint, showing the square with interpretive mowing; small circle at left foreground, large circle at far right. (Photo by Susan Knisley, National Park Service)

Boundary & Buffer Zone

The World Heritage Boundary of the Hopeton Earthworks encompasses all components necessary to convey the site's Outstanding Universal Value. These include the two large earthen enclosures, the two small circles to the east of the square, and the remains of the parallel walls. A marginal allowance of at least 30 meters ensures the inclusion of any archaeological remains associated with the degradation of the walls over time.

Hopeton's Buffer Zone ensures the preservation of the remains of the earthworks proper, the open vistas of its setting, and the considerable archaeological research potential across its immediate, upper-terrace context. It is therefore comprised of all adjacent parcels currently owned by the US National Park Service (to a distance of 300 to 600 meters in three directions), which are managed as native grasslands. Wooded tree lines follow the buffer zone boundaries on the north, east, and south sides, providing effective visual screens separating the property from the railroad line and highway to the east, and housing developments to the south. Beside the road at the southern edge of the Buffer Zone, an asphalt-paved, 12-car parking lot is linked by a handicapped-accessible trail to the level of the earthworks and the wayside observation area.

The riparian corridor bordering the Scioto River west and north of the site is owned by the Highlands Nature Sanctuary and subject to deed restrictions ensuring its conservation.

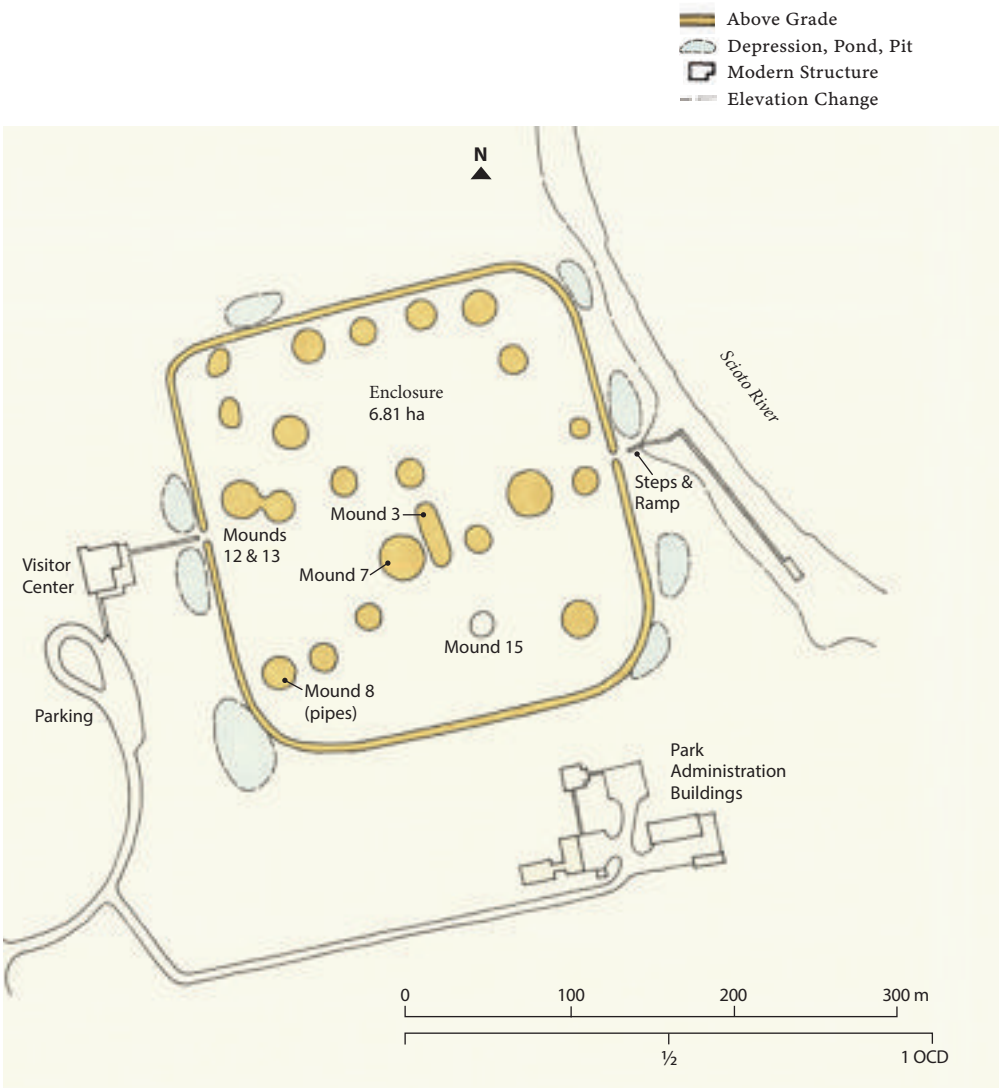
2.a-**41** The central portion of Mound City, seen from the west, showing one of eight ancient pits in the foreground, and the northern half of the Mount Logan range in the distance through the trees.

Location & Setting

Mound City stands directly across the Scioto River from the Hopeton Earthworks, on the right (western) bank of the river, likewise 80 kilometers north of its confluence with the Ohio River. Like its counterpart across the river, with which it was likely a ritual pair, it is situated on the high, level, glacial outwash terrace. The site overlooks a broad meander of the river and its floodplain on the opposite bank. A dense, natural, wooded area fully encircles the Mound City enclosure at close range, effectively screening views of any nearby modern intrusions (Figs. **41** & **43**).

Scope & Form

The monument consists of 25 mounds of varying sizes surrounded by a low, earthen enclosure wall. In plan, the wall forms a slightly irregular square with rounded corners, and very gently flaring sides, about 260 meters across and with an area of 6.81 hectares (Fig. **44**). The enclosing wall is highly uniform in cross-section, at 1.2 meters in height and 4.5 meters wide at its base. It is interrupted by two gateways in the centers of its eastern and western sides. These opposing gateways suggest an axis across the center of the enclosure, parallel to the other two sides and oriented toward an azimuth of 78.2 degrees east of north. The enclosure's eastern wall approaches closely to the upper edge of the densely wooded embankment that falls steeply down to the Scioto River.



2.a-**42** Architectural plan of Mound City. Based on data from LiDAR, aerial and satellite photography.

Positioned just outside the enclosing earthwork wall are eight constructed pits of varying sizes and depths. Dug deep into the loose gravels of the terrace, traces remain of their clay loam linings, though in most cases covered now by later erosion. (They were once assumed to be "borrow pits"—sources of soil to build the mounds—but their depth and their clay linings show they were instead built to retain water.) The largest of these is adjacent to the southwestern corner of the enclosure wall, and is 28 by 63 meters in area and nearly two meters deep (Fig. **45**). The most thoroughly researched of these pits is the one outside the southeastern corner of the enclosure; it is 24 by 15 meters in area and 1.8 meters deep. The northwestern pit is 19 by 37 meters in area and 1.1 meters deep.

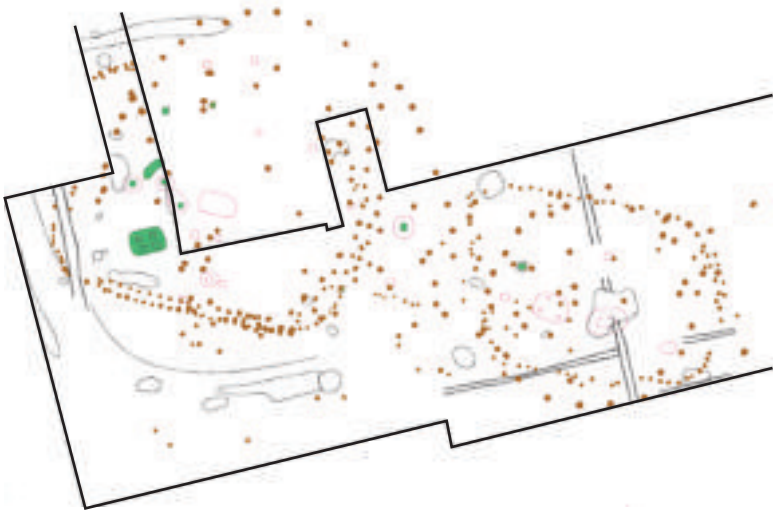
All of the mounds and walls visible at Mound City today are modern restorations based upon intact base layers, and an extensive record of documentary and field research stretching back more than 150 years (See Section 2.b, pages 161–164). One of the mounds (Mound 15) remains unrestored, with short wooden posts marking the floor plan of its sub-mound structure.

2.a-**43** Mound City, viewed from outside its southern enclosure wall.

2.a-**44** Aerial photo of Mound City (1985), showing its densely wooded immediate surroundings and its direct proximity to the Scioto River. (Photo by John Blank)

2.a-**45** The largest of Mound City's several pits is located just outside the southwestern corner of the enclosure wall.

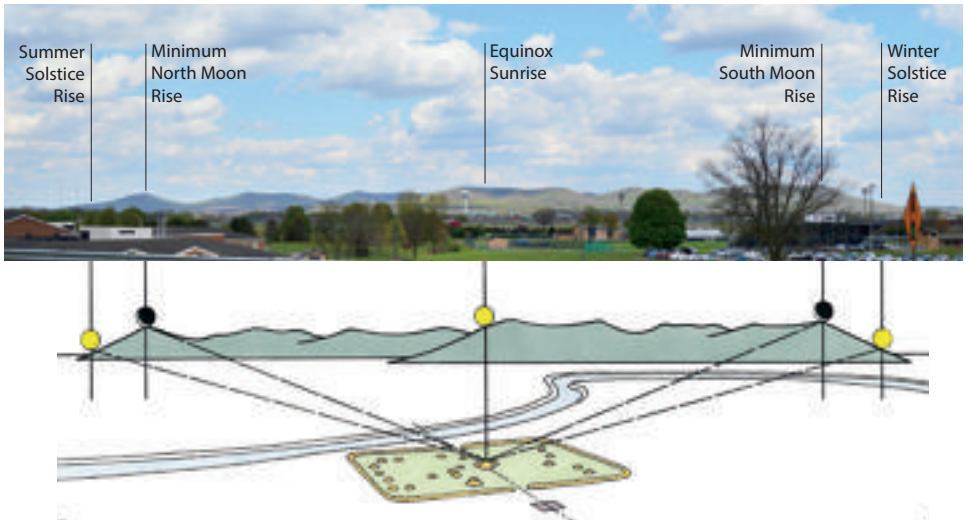
2.a-**46** Plan of the conjoined building remains beneath Mounds 12 and 13 at Mound City, showing its postholes and other features. (Jarrod Burks, National Park Service)



The circular mounds within the enclosure include both spherical and conical forms, varying from 0.91 to 5.49 meters in height, and from 7.62 to 30.48 meters in diameter. Mounds 12 and 13 are a conjoined pair, and cover the remains of a connected double structure (Fig. **46**). In the approximate center of the enclosure stands the largest mound in this ensemble, Mound 7 or the "Central Mound" (also called the "Death Mask Mound") with a precise conical profile and a rounded top. Immediately to the east of the Central Mound is Mound 3, an oblong, loaf-shaped mound also called the "Elliptical Mound;" it is 42.67 meters long, and 12 to 15 meters wide. The height of its long ridge is three meters, and its sectional profile is triangular with a rounded top.

Geometry & Astronomy

The Mound City enclosure is in the shape of a flare-sided square with rounded corners (termed a superellipse, or a "squircle"). This may seem to be a poorly-executed square, but the predominance of this shape across the Hopewell world suggests otherwise. It precisely reproduces in monumental form the shape of the wooden structures that preceded the individual mounds (Fig. **46**, see also Fig. 2.b–**41**, page 158). These wood-framed structures, in turn, reflect the shapes of the clay basins constructed on their floors (See Fig. 2.b–**48**, page 163), and typically containing cremated human remains and/or ceremonial regalia. This mirroring, or nesting, of a favored shape was clearly intentional. Squares with rounded corners were also used frequently at other Hopewell era sites in the region, and for domestic as well as ceremonial buildings.



2.a-**47** The Mount Logan Range as seen from an elevated position west of Mound City.

2.a-**48** Diagram of the Mount Logan Range horizon, indicating sight lines from the center of Mound City to the extreme northern and southern solar and lunar rise-points.

Mound City's diagonals each approximate one OCD. The Mound City enclosure shares its orientation and its axial center-line with that of the similarly-sized square at the Hopewell Mound Group eight kilometers to the west-southwest.

The enclosure's southeast to northwest diagonal is aligned to the summer solstice sunset, within 0.75 degree. The forested hillsides defining the Scioto River valley at this location have a particularly vivid profile. The eastern horizon, called the Mount Logan Range, is the westernmost mountain-like formation of the rugged Appalachian Plateau. From the position of Mound City, this range of hills is visible as a mass dominating the eastern horizon, and exactly symmetrical around due east (Fig. **47**). From the position of the Central Mound, the most prominent within the enclosure, the visual width of this mass from one peak to the other defines the 48.5 degree range between the minimum extreme northern and southern rise-points of the moon, at this latitude, every 18.6 years. Its width from the outer base-points of those peaks marks, with equivalent precision, the locations where the sun rises on the two solstices (Fig. **48**).

Archaeology & Artifacts

Archaeological discoveries at Mound City are of defining significance for the Hopewell culture (Fig. **49**). In the 1920s, archaeologists of the Ohio History Connection discovered the large, well-built shrine buildings beneath the mounds, with their clay altars and cremations, and their tableaus of spectacular objects fashioned out of exotic goods, and representing animals and mythic human figures. (The creation of these ritual goods and facilities is described in Section 2.b, pages 158–160.) Further research into the mounds and enclosure wall in 1963-1975, and up to the present in targeted surrounding areas, shed further light on Hopewell artistry and subsistence, respectively. Many of the objects originally found in the 1920s remain to be analyzed with modern methods.

2.a-**49** Iconic Hopewell artifacts from Mound City: 1. Mica Mirror 2. Pipestone Raven Pipe 3. Copper Antlers 4. Copper Mushroom 5. Copper Bird Plate 6. Obsidian Spear Point 7. Shell Container 8. Copper Vulture Heads 9. Copper Falcon (National Park Service)

0 5 10 cm

Among the pre-eminent artifacts from Mound City is a remarkable deposit of platform effigy smoking pipes depicting mostly animals, but also human heads. (They were found in Mound 8 by Squier and Davis in the 1840s, and are now curated at the British Museum.) Other important artifacts from Mound City are exhibited at its visitors center, including many made from exotic raw materials such as outsized obsidian blades and mica mirrors. Copper sheets hammered into relief effigies include the iconic falcons, ram's horns, turtles, and animal claws. The park now houses nearly 60,000 artifacts from Mound City, including those from nearby surface collections, mitigation projects, and research by the Ohio History Connection, the National Park Service, and the University of Kansas.

Modern Structures

There are no modern structures within the nominated Boundary of Mound City, other than a concrete walkway with stairs, ramps, and railings allowing visitors to descend along the embankment of the Scioto River (Fig. **50**). Portable signs are used to guide and inform visitors among the mounds themselves.

2.a-**50** Stairs descending from near Mound City's eastern gateway toward the river.

2.a-**51** Mound City visitor center and orientation signage, seen from the parking area.

2.a-**52** Bronze model and orientation signage at Mound City; the enclosure's western gateway is beyond.

Boundary & Buffer Zone

The World Heritage Boundary of Mound City encompasses all components necessary to convey the site's Outstanding Universal Value, namely the mounds themselves, the earthen wall and its eight adjacent pits, and an exterior perimeter margin of 10 meters to include possible archaeologically significant remains. It also includes the adjacent sloped embankment approaching the Scioto River to the east.

The Mound City Buffer Zone is sufficient to preserve the earthwork proper, in a pristine woodland setting, along with its connecting relationship with the river. Therefore, it extends out to the boundary of the National Park unit on the north, west, and south. The museum and visitor center building (Fig. **51**) stands in the Buffer Zone to the west and on axis with the earthwork. It is a one-story, stone-clad structure with a low pitched metal roof, and is located so that the visitor can view the axis established by the earthwork's two gateways (Fig. **52**). Site orientation signage is installed near the building, and there is a small parking area.

An unpaved trail connects the visitor center to the riverbank, passing through the forested area just north of the earthworks. Administrative, research, storage, and maintenance facilities for Hopewell Culture National Historical Park are clustered in an area south of the earthworks, near the park boundary, and visually screened by forest. The Buffer Zone to the north includes a 16-hectare field, of archaeological interest, owned by the National Park Service and managed as native grassland. On the east, the Buffer Zone extends to the bank of the Scioto River. In the immediate context of the earthwork, the Buffer Zone is densely wooded on all sides and provides a visual screen from surrounding land uses.

Beyond the Buffer Zone, the floodplain across the river (toward the Hopeton Earthworks) effectively prevents incompatible development. There are two parcels of state prison land on the west and south of Mound City that are subject to conservation restrictions, providing long-term protection against incompatible land-uses. Also beyond the Buffer Zone to the east, at a distance of just over 6 kilometers, stands the Logan Range, the sighting instrument defining Mound City's astronomical alignments. The topographic features creating its distinctive profile, as viewed from Mound City, are preserved within the Great Seal State Park (the view inspired the design of Ohio's State Seal).

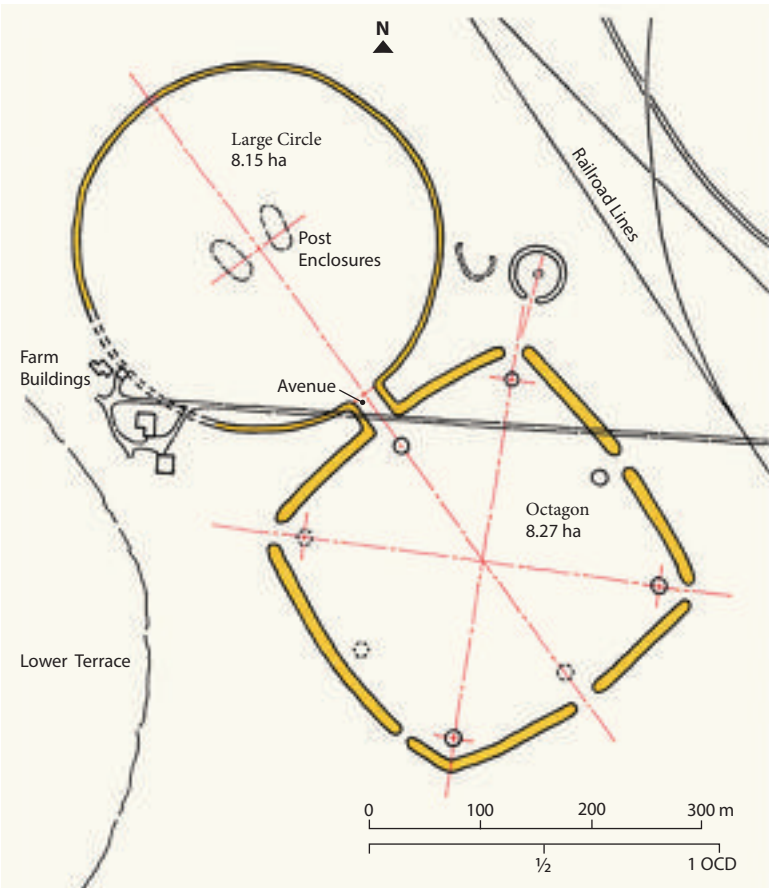
2.a-**53** Site of the High Bank Works' large circle and the north corner of its octagon, viewed from the railroad embankment.

Location & Setting

The High Bank Works are situated in a rural setting—an open, no-longer-cultivated field on the high glacial outwash terrace along the eastern bank of the Scioto River (Fig. **53**), directly across from the confluence of Paint Creek. It is three kilometers south of the city of Chillicothe, and 6 kilometers south of the Hopeton Earthworks and Mound City. The "high bank" after which the site is named shows evidence of huge meander loops of the Scioto. Immediately to the west of the earthwork, a steep, forested embankment falls away toward the river's flood plain nine meters below. Just beyond the eastern edge of the earthwork, a five-meter-high railroad embankment separates the site from a modern highway and the low hills beyond. Distant horizons open up to the north and south, along an axis bearing 143.4 degrees, shared by the earthwork itself and the giant, ancient Teays Valley that it occupies.

Scope & Form

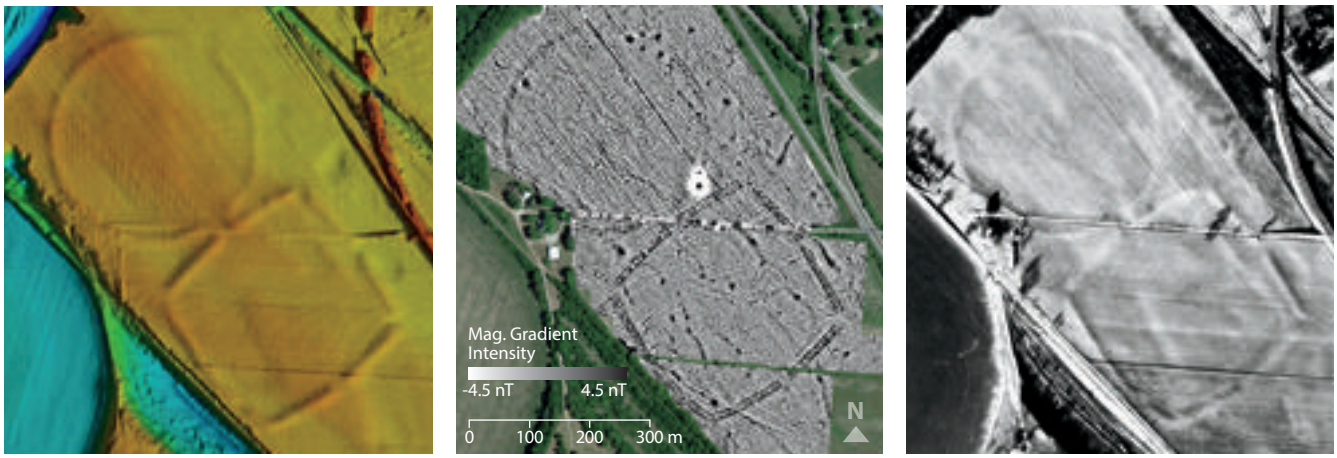
High Bank is similar in size and geometry to the Octagon Earthworks at Newark, the only other Hopewell work of this type. It is comprised of a large circle connected by a narrow avenue to a slightly irregular, open-cornered octagon. The circle has an area of 8.15 hectares, while the octagon has an area of 8.27 hectares.



2.a-**54** Architectural plan of High Bank Works. Based on data from magnetometry, satellite imagery, and Squier and Davis.

In the mid-nineteenth century, the walls of the octagon were measured as 3.7 meters high, similar to those of the Hopeton's square, while those of the circle were 1.5 meters high. Today, the octagon's walls average 1.5 meters in height and are clearly visible in recent LiDAR images (Fig. **55**), but can be perceived on the ground only with some difficulty. The circle is easily traceable in geophysical or aerial imagery (Figs. **56** & **57**), but is difficult to follow on the ground. Eight mounds are just inside the corners of the octagon. In six of the corners, they are matched with open gateways in the usual fashion. Instead of a gateway at the southernmost apex, a curved extension of one wall forms an offset gateway on the southwestern side. The adjacent, southwestern apex (actually a subtle arc) has no gateway opening, but its mound is positioned on the octagon's cross-axis. The interior mounds are not visible today.

Just outside the northern corner of the octagon are the sub-surface remains of a small circle, 45 meters in diameter, with an interior ditch and a gateway aligned toward the octagon's open corner. Nearby are the partial remains of a rounded-corner rectangular feature, discovered in recent magnetometry data. Two huge (18 by 40 meter), oval post-enclosures have also left traces on either side of the center point of the large circle.



Geometry & Astronomy

The large circle at High Bank has the same diameter as Newark's Observatory Circle (322 meters—the OCD) and, though somewhat less precise, still varies less than 2 meters from the shape of a perfect circle. The corner mounds inside High Bank's octagon form a square with a diagonal of one OCD. High Bank's primary central axis, though not aligned to any astronomical event, points precisely toward the locations of two other now-destroyed geometric earthworks in its immediate vicinity—Works East, which stood 3.5 kilometers to the north, and the Liberty-Harness Earthworks whose scant remains lie 6.3 kilometers to the south (Fig. **58**). This axial line also corresponds to the southeasterly bearing of the dramatically wide and unusually straight Scioto (Teays) Valley itself. It is also exactly perpendicular to the main lunar axis of Newark's Octagon Earthworks, 103 kilometers away (Fig. **59**).

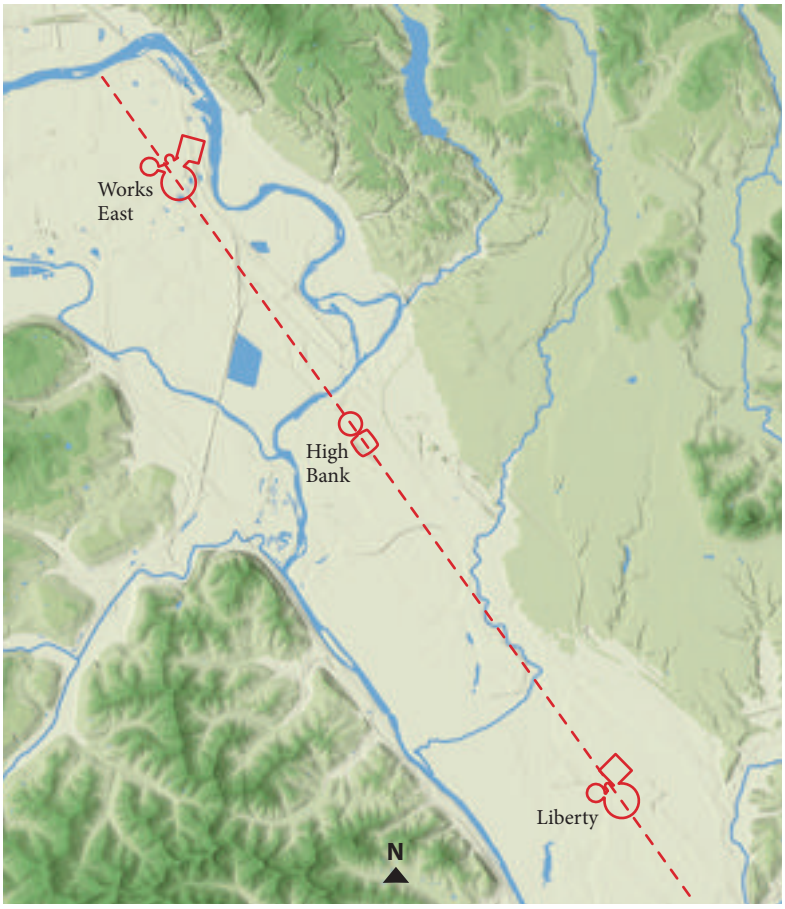
Like Newark's Octagon Earthworks, the High Bank Works encode the extreme rise and set points of the moon at its latitude, but in addition also capture the solstice sunrises and sunsets (Fig. **60**). The cross axis of its octagon, perpendicular to the site's principal axis, marks the moon's northernmost rise, while the eastern of the octagon's north walls aligns to the summer solstice sunrise. From the point on the large circle opposite the avenue (the location of a topographic rise corresponding to Newark's "observatory mound"), alignments to the far left and near left corners of the octagon mark the maximum southern lunar rise and the winter solstice rise, respectively. These four eastern-horizon alignments thus establish the overall shape and orientation of the earthwork (Fig. **60-A**).

Also like Newark's Octagon, other alignments are captured in more unusual ways, and with seemingly anomalous features. High Bank captures not only the six remaining lunar alignments but also both solstice set positions (Fig. **60-B**). Of these eight additional alignments, three occur between apexes of the octagon: north to west captures the maximum south moonset; west to southeast the minimum south moonrise; and the reverse (southeast to west) the minimum north moonset. Three more involve the defining points of the avenue connecting the circle and octagon: the octagon's north apex marks

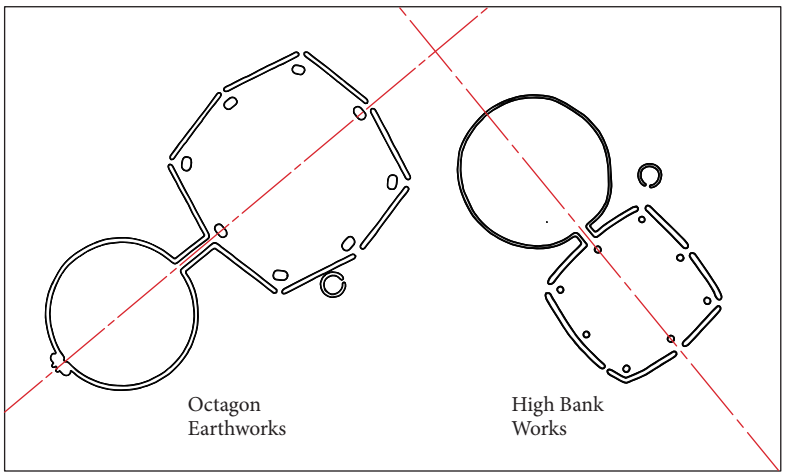
2.a-**55** LiDAR image of the High Bank Works (2008). Despite its being obscure on the ground, this indicates the site's good state of preservation. (William Romain and Jarrod Burks)

2.a-**56** Magnetometry data of High Bank Works inserted into an aerial photo. (After Burks)

2.a-**57** Aerial photo of High Bank Works (1964), showing the walls, the small circle at center right, and traces of some of the octagon's interior mounds. (U. S. Department of Agriculture)



2.a-**58** Map of the Scioto River Valley south of Chillicothe, showing the axial alignment of three earthworks, also matching the dominant 143.4-degree bearing of the Teays-age valley itself. (After Hively and Horn)



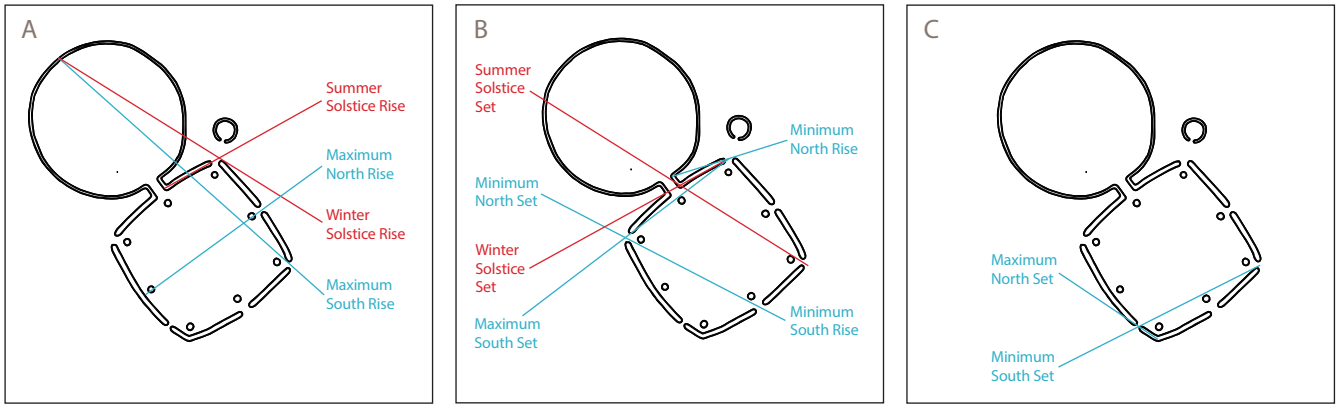
2.a-**59** Though separated by 103 kilometers, and each designed to function at its respective latitude, the primary axes of Newark's Octagon Earthworks and High Bank Works are 90 degrees to each other.

the minimum northern moonrise when viewed from the avenue's northeastern corner. The avenue's southeastern corner aligns to the winter solstice sunset when viewed from the octagon's northern apex. This same southeastern corner marks the summer solstice set when viewed from the octagon's eastern apex.

Finally, and also like Newark, two remaining alignments (Fig. **60-C**) are captured in what would otherwise seem to be a design anomaly. The minimum southern moonset, viewed from the eastern octagon apex, occurs through the oddly displaced gateway at the southern corner; and the seemingly distorted angle of the short, adjacent, corner wall places it into alignment with the maximum northern set.

Though extraordinarily complex, High Bank Works thus captures alignments to all twelve of the solar and lunar standstills along its local horizons.

2.a-**60** Diagrams of the principal solar and lunar alignments encoded in the High Bank Works.



Archaeology & Artifacts

Little archaeological research has been done at High Bank. From the mid-1990s to 2010, N'omi Greber of the Cleveland Museum of Natural History undertook the most extensive investigations, which included remote sensing and radiocarbon dating. Of the nominated earthworks, High Bank has probably the greatest potential for research. Its chronology remains unproven, and many features revealed by remote sensing need to be field verified. These and other questions are particularly important given the earthwork's size, elaborate geometry, astronomical alignments, and probable connections with the Newark Octagon.

Like its sister site in Newark, High Bank has a very stark lack of artifacts. Only one flint flake is noted in Greber's work, which may have been from an earlier period of occupation. Archival materials from her field work reside at the Cleveland Museum of Natural History and at Hopewell Culture National Historical Park.

Modern Structures

The circle and octagon at High Bank are bisected diagonally by a gravel farm lane. No other modern structures are within the Boundary.

Boundary & Buffer Zone

The World Heritage Boundary of the High Bank Works encompasses all components necessary to convey the site's Outstanding Universal Value. These include all but a relatively short (80-meter) arc of the large circle, the entirety of the octagon, plus the small circle situated near them on the east. The Boundary also includes a 30-meter margin outside the earthworks' known center-lines, to encompass the degraded remains (the "ruins") of the walls. The segment of the circle not included in the Boundary at this time lies on a parcel that is still privately owned, although it is within the authorized boundary of the National Park. It is therefore included in a "Land Protection Plan" and identified for acquisition from willing sellers in the future.

The High Bank Buffer Zone is configured to ensure the preservation of the known remains of the earthworks, the wide open vistas of its setting, its connection to the river on the north, and the archaeological research potential associated with its immediate surroundings. Within the Buffer Zone, at the western edge of the high terrace, is the privately owned parcel containing the segment of the circle discussed above. Four buildings stand on this parcel (two residences, a garage, and a pole barn) but are effectively screened from view by mature trees from the vantage point of the remainder of the earthworks.

Also within the Buffer Zone, thick vegetation along the remaining western margin of the terrace hides traces of a railroad bed and a sand and gravel quarry, both of which were abandoned before 1940. The entire scarp of the terrace, falling nine meters to the Scioto River floodplain below, is also heavily wooded.

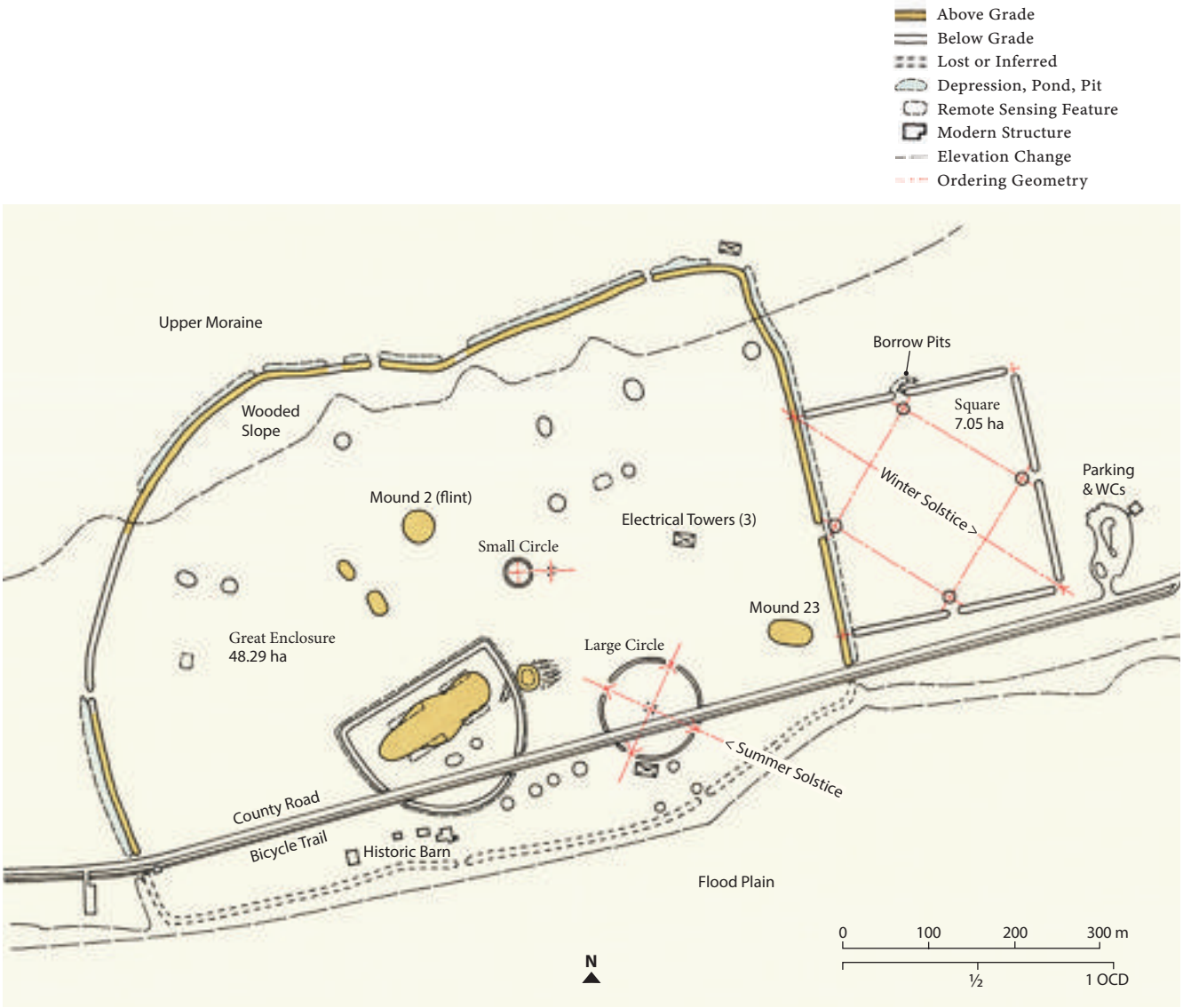
2.a-**61** A section of the intact earthen walls near the northwest corner of the Great Enclosure at Hopewell Mound Group.

Location & Setting

The Hopewell Mound Group is situated in a rural setting, on a broad, flat glacial outwash terrace overlooking the active floodplain of the small North Fork of Paint Creek to the south. The elevation drops steeply to this floodplain, immediately beyond the remains of the earthwork wall. The large, open space of the earthwork complex is surrounded at varying distances on all sides by wooded hills. It is eight kilometers west-southwest from Mound City, and 18 kilometers northeast from Seip Earthworks.

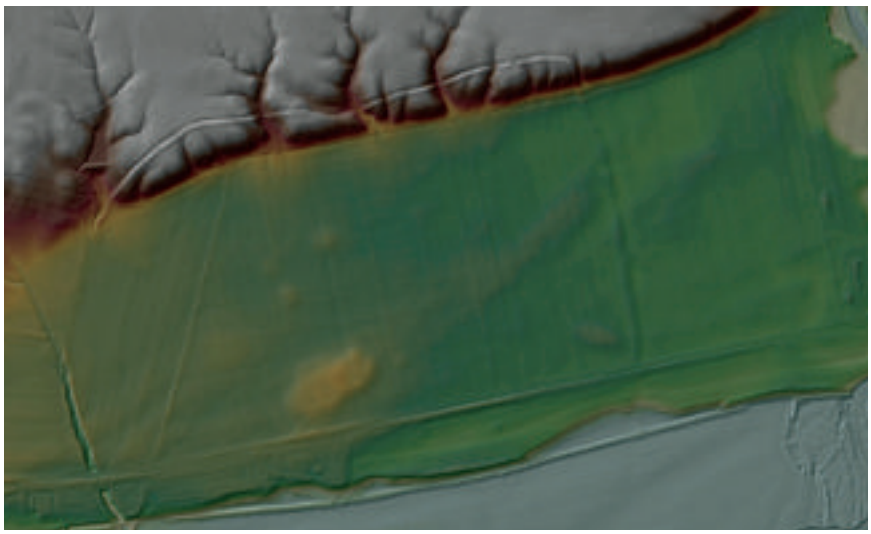
Scope & Form

Hopewell Mound Group is a composite earthwork design consisting of hilltop, geometric, and irregular forms. It is the largest in this nominated series, with four kilometers of earth and stone embankment walls enclosing 55.34 hectares. It consists of the large, roughly rectangular space called the Great Enclosure (averaging 580 by 880 meters), and an adjoining perfect square to the east-northeast. The north wall of the Great Enclosure ascends some 10 meters to the crest of a glacial moraine, where it is accompanied by an exterior ditch (Fig. **61**) and undulates in and out of small ravines (Fig. **63**); many of the resulting artificial depressions still retain water. Within the Great Enclosure are three smaller enclosures—a D-shape and two rings—and the remains of more than twenty mounds.



2.a-**62** Architectural plan of Hopewell Mound Group. Based on aerial photo (1951), field maps (Greber, Shetrone, Cowan), magnetometry data (2015-2017), satellite imagery, and Squier and Davis.

The Great Enclosure encompasses more than 48 hectares (Fig. **64**). The remains of its southern wall are not well documented, but at least portions of its narrow, stone-built form have been detected along the immediate terrace edge overlooking the flood plain below. The eastern wall of the Great Enclosure, with its accompanying ditch, most nearly approximates geometrical rigor, forming the western side of the square enclosure. These walls are 0.7 meter in height today, reduced by plowing from the 1.8 meters recorded in the mid-nineteenth century. An outer ditch of equal dimensions accompanies this eastern wall. Though plowed out today to a width of 16 to 20 meters, geophysical data and excavation have revealed that the base layers of this eastern embankment wall and its adjacent ditch are well preserved.



2.a-**63** LiDAR image of the Hopewell Mound Group, showing the well-preserved northern wall and ditch, the steep scarp defining the southern boundary, and subtle relief of other walls and mounds. (National Park Service)

2.a-**64** View from a wayside within the Hopewell Mound Group, looking west across the road into the center of the Great Enclosure, toward the subtle, three-lobed profile of the largest mound, Mound 25.

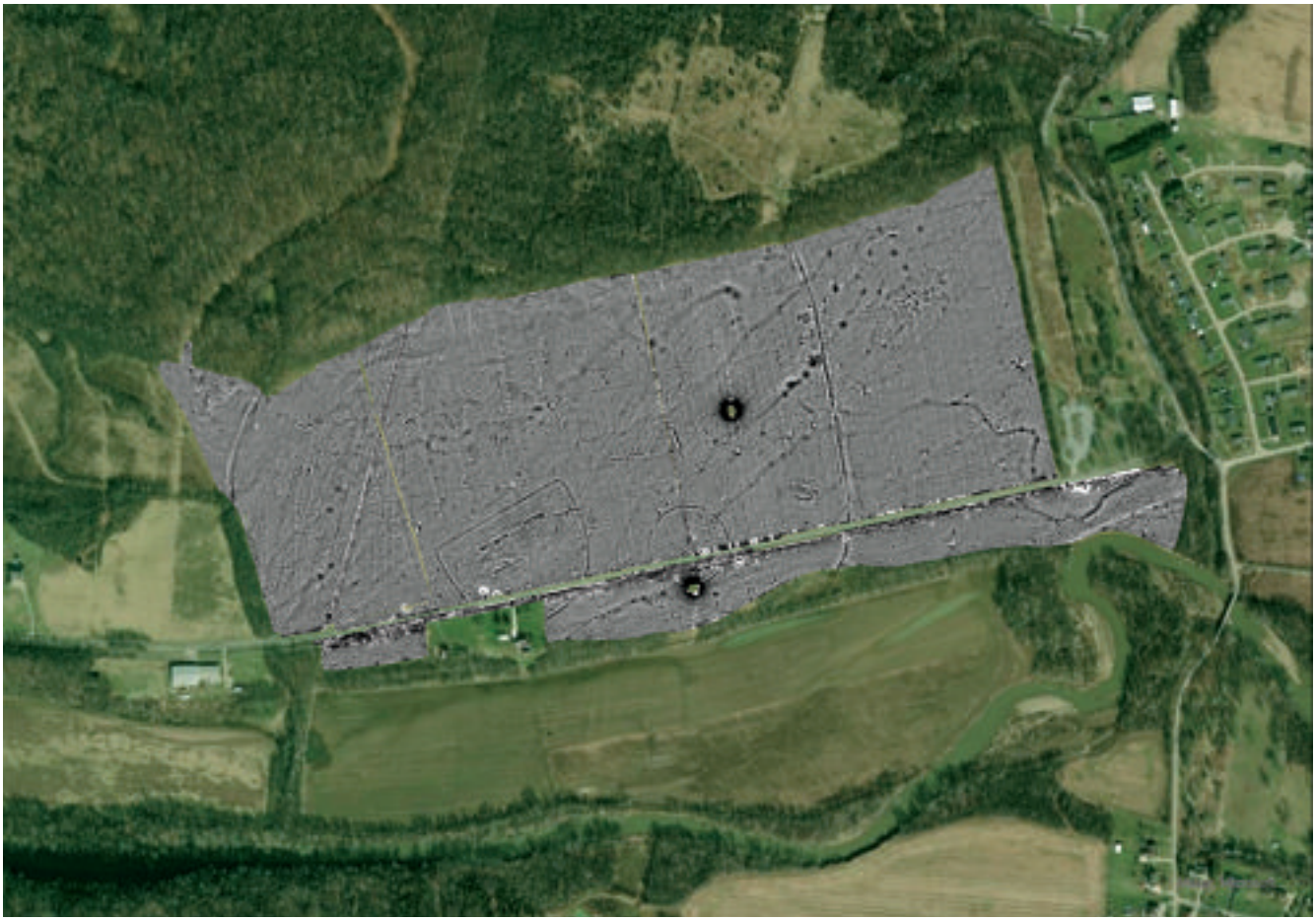
The northern, elevated portion of the Great Enclosure, where the earthen walls traverse the edge of the moraine, is particularly well preserved, having been subjected to little if any plowing. The most intact portions are about 10 meters wide, and stand about 1.5 meters above the surrounding level. The accompanying ditch still reaches a depth of about 0.8 meters, creating a total relief from bank to ditch of about 2.3 meters today, equivalent to when it was first recorded in the mid-nineteenth century (Fig. **65**). The physical fabric of this northern embankment is essentially intact, and the water-retaining linings of the pools that form in the ditches on their uphill sides remain undisturbed and effective. At least half of the western section of the Great Enclosure survives, at a height of just under 0.5 meter. It runs adjacent to an intermittent waterway between the hillside and the terrace edge to the south.

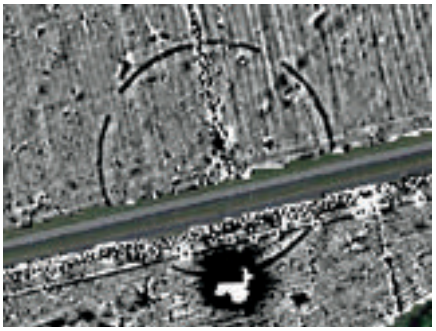
2.a-**65** A section of the intact wall and exterior ditch along the northern edge of the Great Enclosure.

The 7.05-hectare square enclosure stands outside the eastern wall of the Great Enclosure and incorporates its straight section as one of its sides. The walls of the square measured 1.8 meters high in the mid-nineteenth century, but have been reduced by agriculture to the point of near invisibility today. Their subsurface traces appear in geophysical images, however, and the National Park Service presents them to visitors through differential mowing. The similarly reduced remains of small mounds stand inside all of the square's mid-point gateways, though not in its corners. The soil out of which the square is constructed is noticeably red in color, possibly from burning, and similar in that respect to that of other squares at the region's geometric sites. Adjacent to the square's central, north-facing gateway are the sub-surface remains of a cluster of borrow pits, each around six meters in diameter.

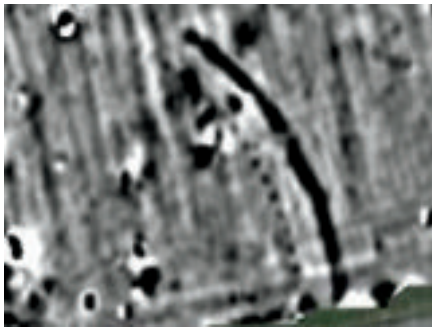
The largest feature within the Great Enclosure is in the form of a "D" measuring 610 meters in circumference, with its straight side facing to the north-northwest. The D form is not perceptible on the ground today, although it can still be traced in LiDAR and geophysical imagery (Figs. **63** & **66**) as the footprint of a five-meter-wide earthwork with a narrow exterior trench. It encloses the largest mound ever built by this culture, called "The Effigy" by early archaeologists and more commonly "Mound 25" today. It was the source of spectacular materials and artifacts excavated in the 1890s and exhibited at the World's Columbian Exposition in Chicago. The triple-lobed form of this huge mound is partially restored from those excavations, rising today to a maximum height of 2.9 meters (Fig. **64**). It is approximately 60 by 160 meters in area; magnetometry data show a symmetrical set of rectangular features along its original outline which have not yet been investigated.

2.a-**66** Magnetometry image of the Hopewell Mound Group (2015-2017), showing intact foundations of portions of the square enclosure at far right, the D-shaped enclosure at lower left, the large circle at bottom center, the northwestern wall and ditch at upper left, and other features. (National Park Service and Deutsches Archäologisches Institut)

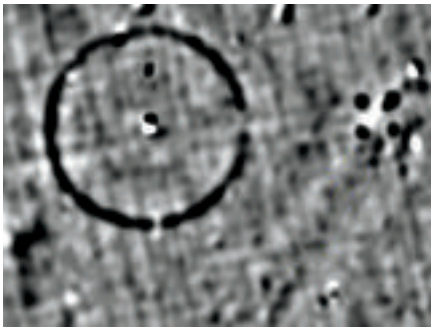




2.a-**67** Magnetometry image of the large circle, showing the ditch (black ring), the gateways, and the four central ovens. (Jarrod Burks, National Park Service)



2.a-**68** Detail of the large circle magnetometry, showing the regularly spaced postholes of a woodhenge. (Jarrod Burks, National Park Service)



2.a-**69** Geophysical image (2012) of the small circle at the Hopewell Mound Group, showing its eastern gateway and a square cluster of anomalies. (Jarrod Burks, National Park Service)

The slightly visible form of Mound 4 stands immediately adjacent to the eastern edge of the "D" shape; the magnetic data show a pattern of several linear anomalies extending from it to the east and west. Three mounds north of the D-shape, including the large Mound 2 (the "Flint Mound"), also retain a visible topographic presence, with heights approaching one meter. Near the southeastern corner of the Great Enclosure, the oblong form of Mound 23 is the second largest of the group, originally more than 45 meters long and five meters tall. Though it is reduced today to one meter above the surrounding level, geophysical investigations and soil coring have demonstrated that significant remains of its mound floor and cobble stone mantle are present beneath the surface.

The remains of two circular enclosures lie within the Great Enclosure. The larger of these is a circular earthwork with an interior ditch, approximately 125 meters in diameter (Fig. **67**). While not visible on the ground surface, new investigations have revealed clear evidence of three gateways in this ring opening toward the northeast, northwest, and southwest (a fourth opening, to the southeast, is obscured but likely). These gateways are more like causeways across this interior ditch. Just inside the ditch are the posthole traces of a ring of closely spaced, large-diameter timber poles—a woodhenge (Fig. **68**). At the geometric center of this circle are the magnetic traces of four gigantic earth ovens, arranged in a square pattern, and in alignment with the 90-degree, cross-axial pattern defined by the gateways. Each of these ovens is 2.8 meters in diameter and 1.7 meters deep.

The other, smaller earthen circle inside the Hopewell Mound Group is approximately 30 meters in diameter (Fig. **69**). It has no surface presence though its underground signature remains intact. (This feature remained unnoticed, even by Squier and Davis in the mid-nineteenth century, until a magnetometry survey brought it to light in 2002.) A square grouping of magnetic anomalies is located on axis with this circle's east-facing gateway, at a distance of 20 meters; these appear essentially identical to those at the center of the large circle.

Geometry & Astronomy

Although the Great Enclosure itself lacks obvious geometric ordering, other individual elements of the site reveal the characteristic Hopewell precision. Each face of the square is 265 meters long and composed of two equal sections separated by a gateway. The square's east-northeasterly orientation axis aligns, through a very evident gap in the surrounding hills, in the precise direction of Mound City (which shares its orientation). The four mounds inside the square's gateways form a square ½ OCD on a side. (If there were mounds at the corners, they would be diagonally one OCD apart, as is the case with those in the octagon at High Bank.) The large circle's diameter is half the dimension of the square, and an inscribed square connecting its cross-axial gateways is ¼ OCD on a side.

A diagonal line connecting the northwest and southeast corners of the square aligns with the winter solstice sunrise, a phenomenon shared with the squares at Hopeton, Mound City, and Seip. The large circle's orthogonal gateways are oriented so that the northwestern one frames the summer solstice sunset when viewed from or across the circle's center.

Archaeology & Artifacts

Archaeological investigations at this, the namesake site of the Hopewell culture, have tracked the theory and methods of American scientific archaeology from the early 1800s to recent remote sensing techniques. Researchers here have mapped the largest of all Hopewell mounds, Mound 25, and marveled at the rich, culture-defining deposits of exotic material artifacts distributed among the large number of burials and other deposits at this site (Fig. **70**). These finds have been decisive in helping archaeologists understand patterns in Hopewell social organization. Since the 1990s, advanced remote sensing methods have uncovered features that were previously unknown, notably the large circle's timber posts and giant feasting pits, and newly recognized shapes and features among the bases of mounds and throughout the site. Most of these have yet to be explored; those that have been are indicating non-mortuary ritual activities in an area that was once considered exclusively mortuary.

2.a-**70** Iconic Hopewell artifacts from the Hopewell Mound Group: 1. Mica Talon 2. Freshwater Pearl Necklace 3. Copper Axe 4. Mica Hand 5. Obsidian Spear Point 6. Copper Circle 7. Copper Bear Paw (No. 3: © The Field Museum, Image No. A110041c, Cat. No. 56018, Photographer Ron Testa; all others Ohio History Connection)

Artifacts from the Hopewell Mound Group are unmatched in quantity, quality, richness, and diversity, and bear spectacular witness to one of the world's great artistic traditions. Works wrought with consummate skill in materials brought from distant places vividly reveal the sophistication and reach of this culture. These include huge (up to 42 centimeters) ceremonial obsidian and crystal knives, plus copper breastplates and copper and mica cutouts in both abstract and figurative forms. Depictions of animals and mythological human figures reflect ethnohistoric accounts of American Indian beliefs and traditions. Objects from Hopewell Mound Group were excavated in 1891 and 1892, and displayed at the World's Columbian Exhibition in Chicago the following year; those now reside at the Field Museum in that city. The Ohio History Connection curates the approximately 10,000 finds from its investigations in the 1920s, including such iconic pieces as the mica hand, the mica claw, and many of the copper cutouts. Hopewell Culture National Historical Park has been responsible for most of the research at the site since 1994, and now holds nearly 42,000 of its artifacts.

Modern Structures

Three steel towers supporting high voltage electrical transmission lines stand within the Boundary (Fig. **71**). A paved county road, originally dating from the nineteenth century, and a parallel recreational trail (a re-purposed rail line) cross the southern edge of the Great Enclosure from east to west. Pedestrian trails totaling 6.8 kilometers, with sixteen permanent and portable wayside exhibits, guide and inform visitors at major mound and earthwork features. The square, the eastern Great Enclosure wall, the D-shape, and the large circle, as well as Mounds 2, 23, and 25, are presented with differential mowing (Fig. **72**).

2.a-**71** The expanse of the Hopewell Mound Group toward the southwest.

2.a-**72** Overview of the Hopewell Mound Group showing the National Park Service mowing program to highlight earthwork features. Mound 25 is at left; the D-shape's corner is in the foreground.

2.a-**73** View from the parking lot in the Buffer Zone east of the square enclosure, showing trailhead signage and the rising wooded ground of the moraine in the distance.

Boundary & Buffer Zone

The World Heritage Boundary of the Hopewell Mound Group encompasses all components necessary to convey the site's Outstanding Universal Value. These include the known earthen walls of the Great Enclosure with the ponding and water features immediately outside it on the west and north, the adjacent large square with its northern borrow pits, and the interior mounds and features of both figures. The southern Boundary (except for two short sections, described below) follows the extreme edge of the level outwash terrace; as a result of likely erosion, the condition of much of that portion of the Great Enclosure wall is not known. The land drops abruptly (about eight meters) along that Boundary line to an abandoned railroad bed in the flood plain below. For the remainder of the Great Enclosure and the square, a margin of 30 meters is included within the Boundary to encompass the archaeological ruins of the walls.

Two small parcels along the southwestern portion of the earthwork proper cannot be included in the Boundary at this time since they remain privately owned, although both are protected within the Buffer Zone. The first of these encompasses 0.72 hectare, with a 90-meter section of possible wall remains along the southern edge of the terrace, and a 60-meter section of the nearby D-shaped enclosure. The second encompasses 0.56 hectares, with a 30-meter length of the terrace edge at the extreme southwestern corner. Since both are within the authorized boundary of the National Park, they are included in a "Land Protection Plan" and identified for acquisition from willing sellers in the future.

The Buffer Zone at Hopewell Mound Group extends to the legislative boundary of the National Park unit. The precipitous drop in elevation at the southern edge of the terrace accounts for the narrowness of the buffer on that side. Visitor facilities in the Buffer Zone include a parking lot, restrooms, picnic shelter, and permanent signage providing an orientation to the site and its trails (Fig. **73**). These are limited to a small area outside the eastern extreme of the earthwork; a vegetated screen separates them from the mound and earthwork complex. A house and its detached garage, reached by a paved driveway, stand in the private parcel at the southern rim of the site. Overall, the Buffer Zone is sufficient to preserve significant vistas from the earthwork within its woodland setting, including astronomical alignment horizons from its square and large circle. It extends to the lower floodplain of the North Fork of Paint Creek on the south, and includes areas managed as grasslands and mature forest.

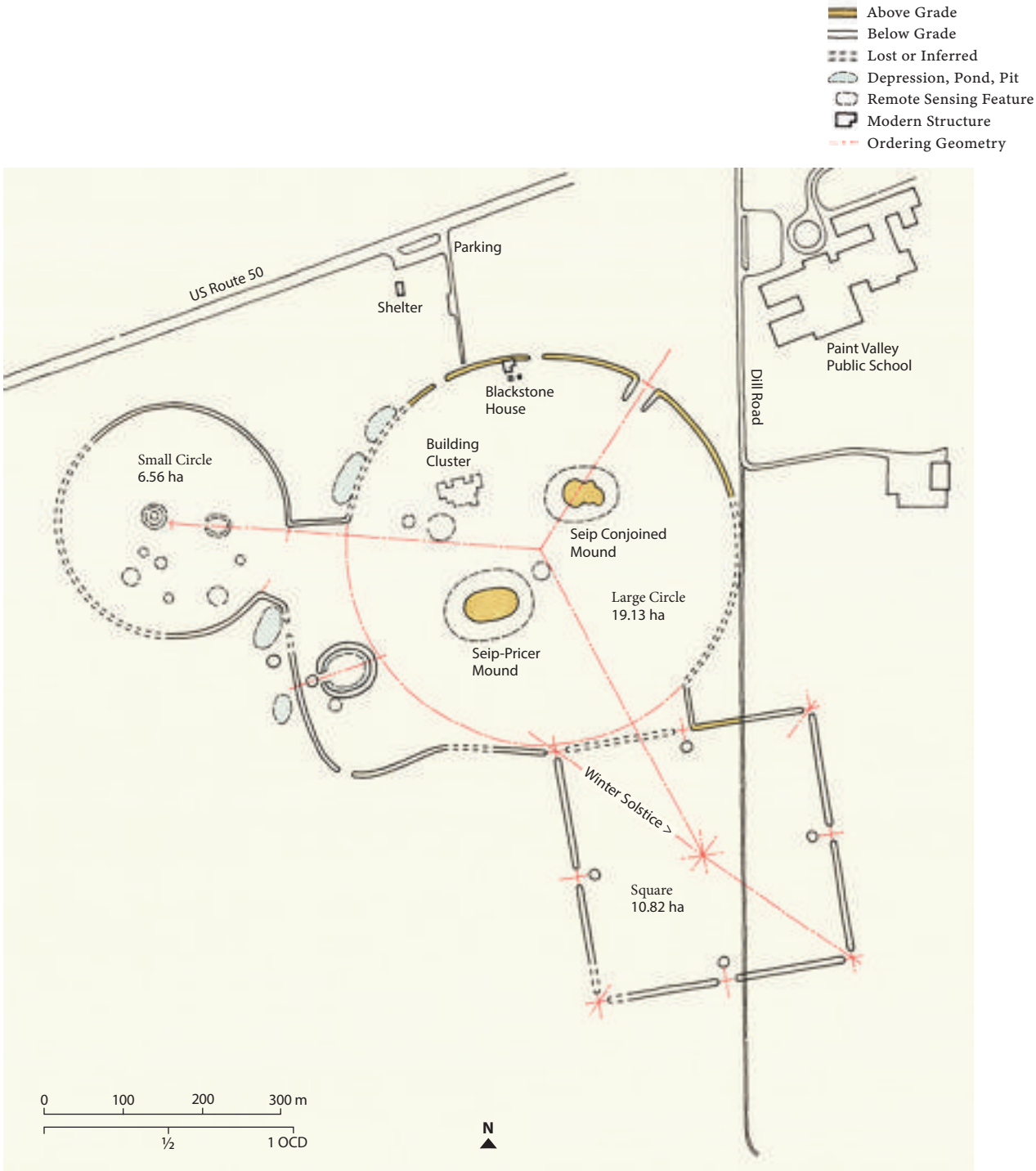
2.a-**74** The Seip-Pricer Mound, viewed from the northwest.

Location & Setting

The Seip Earthworks stand on a generally level glacial outwash terrace above the north (left) bank of Paint Creek, 16 kilometers west from where it flows into a narrow canyon on its way to joining the Scioto River 5 kilometers below Chillicothe. Seip is 18 kilometers southwest from the Hopewell Mound Group. The Paint Creek Valley just east of the town of Bainbridge forms an especially beautiful, rural landscape setting, entirely surrounded by high forested hills. It contains the remains of several ancient geometric figures, of which Seip is the best preserved (Fig. **76**). Surrounding land uses are farms, estates, and small villages, and a school immediately east of the earthworks.

Scope & Form

The Seip Earthworks complex is formed by three geometric figures, and encloses an area totaling 36 hectares. A large, partial circular enclosure is 494 meters in diameter. A smaller and very precise square, 329 meters on each side, is attached on the southeast. A smaller circle with a diameter of 289 meters is attached on the west. An irregular section of wall completes the enclosure, connecting the square with the smaller circle. Though now degraded, much of the northern and northeastern sections remain faintly visible, and their locations, profiles, and soil compositions have been confirmed by archaeological



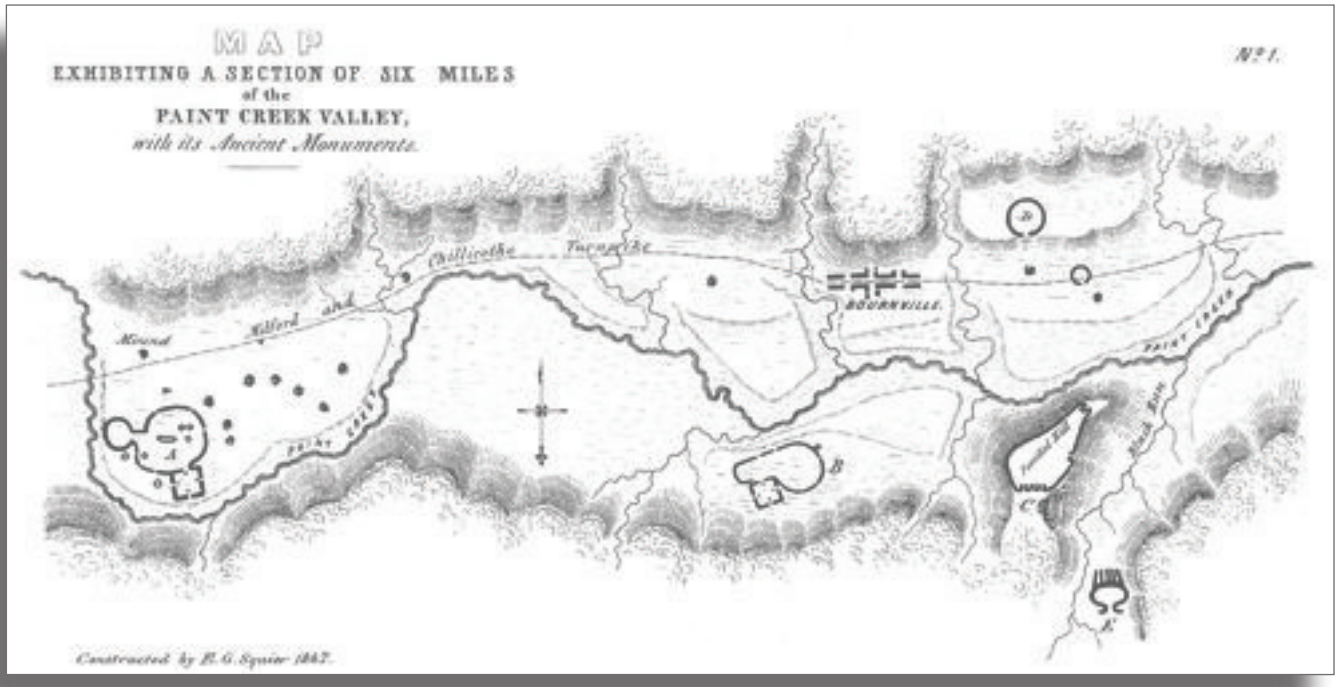
2.a-**75** Architectural plan of the Seip Earthworks. Based on data from magnetometry, LiDAR, satellite photography, and Squier and Davis.

investigations. Magnetic data reveal the clear outline of a tapered, re-entrant gateway toward the northeast. Four borrow pits lie outside the western walls of the large circle.

The walls of the square were similar in profile and interrupted by eight gateways at their corners and midpoints, with small mounds (now lost) standing inside the midpoint gateways—a design characteristic of most other Hopewell square enclosures. Like those of the two circles, its walls are today traceable mainly by geophysics and with the aid of interpretive planting and mowing by the National Park Service.

The enclosing walls of Seip, though degraded, largely retain evidence of the construction process used nearly universally for the Scioto and Paint Creek Valley earthworks, in which topsoil was stripped to form a prepared base on which at least two contrasting soil colors were then carefully arranged (See Section 2.b, page 152).

Near the center of the larger circle stands the Seip-Pricer Mound, restored to its recorded nineteenth-century dimensions following thorough excavations in the 1920s (Figs. **74** & **77**). It is the second largest Hopewell mound in the Ohio heartland, its loaf shape measuring 75 by 45 meters at the base, and 9.6 meters in height. Beneath the mound are the remains of the builders' prepared surface and the posthole pattern of an elaborate, precisely gridded, three-chambered timber building, in which were found important remains of ceremonial ritual and burial. Magnetometry data reveal an unexplored feature surrounding the base of the mound at a distance of 20 meters.



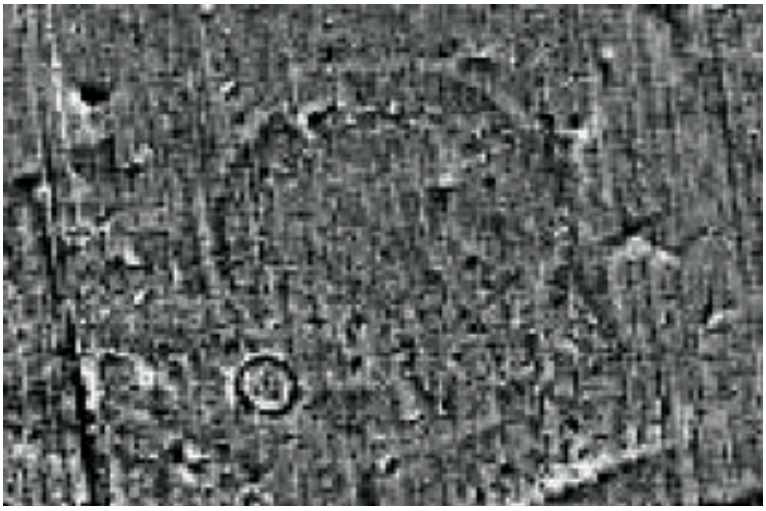
2.a-**76** Squier and Davis's 1847 map of the Paint Creek Valley earthwork cluster; Seip is at the far left (A), Baum, another of the five "tripartites," is at the center bottom (B), and Spruce Hill is the arrowhead-shaped hilltop feature in the lower right quadrant (C). The latter two are discussed in Section 3.2, the Comparative Analysis. (from *Ancient Monuments of the Mississippi Valley*)

Approximately 150 meters to the northeast of the Seip-Pricer Mound, also within the large circle, stands the Seip Conjoined Mound (Fig. **78**). The heights of its three lobes were measured in the nineteenth century at 9.7 meters, 3.6 meters, and 1.8 meters, though today the unrestored mound crests at about two meters. Beneath the mound are the remains of three circular buildings, two of which contained cremated burials. Magnetometry data reveal the underground remains of a narrow embankment wall and accompanying trench forming an oval at a distance of 20 meters from the mound's perimeter.

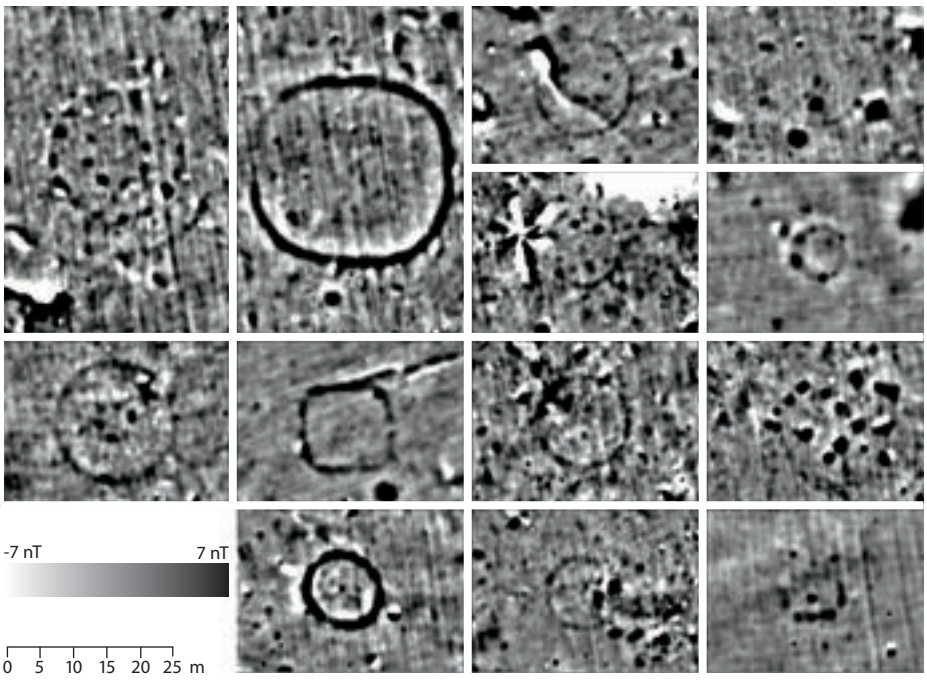
2.a-**77** The restored profile of the Seip-Pricer Mound viewed from the north, in the immediate foreground is a restored gateway of the large circular enclosure.

2.a-**78** Unrestored remains of the Seip Conjoined Mound, in the center distance.

On the opposite side of the large enclosure, near the irregular connecting wall, are the subsurface remains of an elliptical enclosure measuring 64 by 75 meters (Fig. **79**). Magnetometry data from the Seip Earthworks reveal many more characteristically Hopewell features, including two mounds near this ovoid enclosure, and a variety of post circles and ditched enclosures (Fig. **80**).



2.a-**79** Magnetometry detail (2015) showing the elliptical enclosure west of the Seip-Pricer Mound, with evidence of an interior ditch and a ring of postholes. (National Park Service and Deutsches Archäologisches Institut)



2.a-**80** Composite of thirteen details from the magnetometry data at Seip (2015-2017), showing a variety of characteristically Hopewell circular and superelliptical rings, ditches, and post patterns, not yet field verified. (National Park Service and Deutsches Archäologisches Institut)

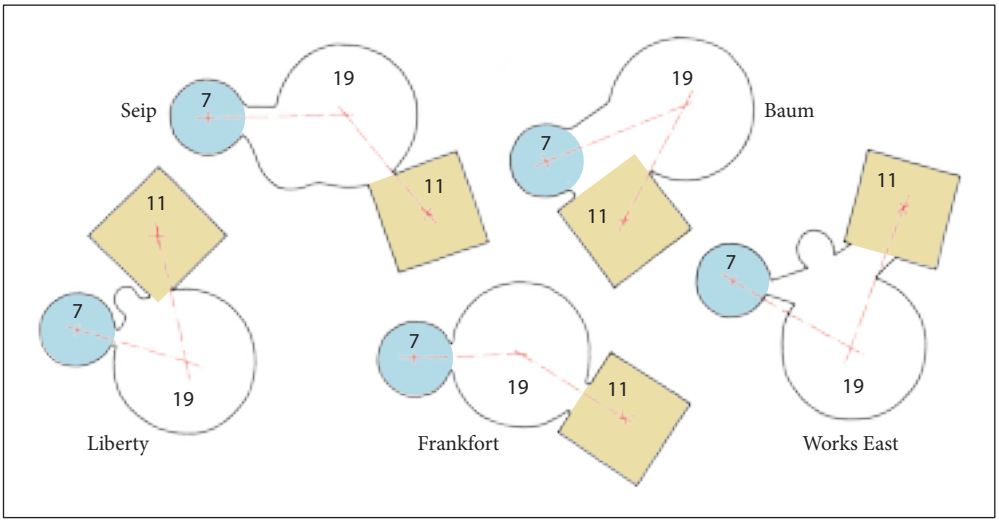
Also within the Boundary, an area of known building and cultural activity exists between the Seip-Pricer Mound and the partially restored wall segments of the large circle to the north. The subsurface remains of several buildings indicate one of the most intensively used areas yet known at any Ohio Hopewell site (See Fig. 2.b–**72**, page 180).

Geometry & Astronomy

The dimensions of the three geometric figures in the Seip complex match those of the corresponding shapes used, in differing arrangements, at four other "tripartite" earthworks clustered in a 30-kilometer area of today's Ross County (Fig. **81**). At each of these five tripartite complexes, the small circle enclosed 7 hectares, the square was one OCD on each side and enclosed 11 hectares, and the large circle was 19 hectares in area with a 1.5 OCD diameter. These repeated dimensions and areas needed precise, well-refined techniques of design, measurement, and execution, and reveal the ancient architects at their most advanced. (Of those, Works East and Frankfort are entirely obliterated today; Liberty and Baum have only scant remains and are treated in Section 3.2, the Comparative Analysis.)

2.a-**81** Diagram of the five tripartite earthworks indicating their equivalent shapes and matching areas in hectares. (After DeBoer)

0 1 OCD



At Seip, lines connecting the centers of the three large geometric figures are of very nearly equal length, and form an angle exactly bisected by the axis of the large circle's northeastern gateway.

The winter solstice sun rises in alignment with a diagonal line connecting the northwest and southeast corners of the Seip square (within less than 0.5 degree), reflecting a pattern of diagonal solstice phenomena also seen at the squares of Mound City, Hopeton Earthworks, and Hopewell Mound Group.

Archaeology & Artifacts

Teams from the Ohio History Connection excavated the Seip-Conjoined Mound in 1906 and the Seip-Pricer Mound in 1925–1928. These studies, and later investigations in the 1970s, revealed elaborate tombs and a large timber structure, as well as evidence of non-mound, non-mortuary activities. Otherwise, unlike Hopewell Mound Group, Seip Earthworks has not been subject to a high level of methodical survey throughout the years. Yet the many subsurface features recently revealed by remote sensing will require decades of archaeological work to explore.

2.a-**82** Iconic Hopewell artifacts from the Seip-Pricer Mound: 1. Ceramic Head 2. Cloth on Copper 3. Flint Spear Point 4. Steatite Drum Stones 5. Steatite Whip-poor-will Pipe 6. Steatite Dog Pipe 7. Tortoise Shell Swan (Ohio History Connection)

Seip's burials and ceremonial deposits have yielded many of the classic exotic materials of the culture, including large caches of copper plates, celts, and earspools; outsized obsidian blades; and many materials in the form of animal effigies (Fig. **82**). Seip deposits are unique among Hopewell sites in the quantity of freshwater pearls, the use of turtle shell in making animal effigies, and the good preservation of textiles and other materials on copper plates. A set of five "Great Pipes" are made in a style and material from the Tennessee River Valley, about 450 kilometers to the south, and examples of complicated stamped pottery suggest connections even farther away. Most of this material (at least 5,000 objects) is curated at the Ohio History Connection, while finds from archaeological work since the National Park Service acquired the site (over 2,000 objects) are curated at Hopewell Culture National Historical Park.

Modern Structures

The only modern structures within the Boundary are the one and one-half story, 1857 Thomas Blackstone House, which stands with its façade directly along the earthen wall of Seip's large circle (Fig. **83**), and its two small out-buildings of similar date, a smokehouse and a milk house. A road leaves the highway and goes south between the earthwork property and the adjacent school, largely in the Buffer Zone but also crossing the square within the Boundary. Permanent upright signage panels orient visitors to the earthworks and their significance at two locations, one close to the parking lot (in the Buffer Zone), and another at the edge of the large circle. A mowed path 460 meters long leads visitors to the Seip-Pricer Mound and a movable, sled-base interpretive sign.

2.a-**83** The Blackstone House seen from the west. The subtle trace of the large circle wall is visible crossing the center right of the image.

Boundary & Buffer Zone

The World Heritage Boundary of the Seip Earthworks encompasses all components necessary to convey the site's Outstanding Universal Value. These include the three geometric earthwork figures in their near entirety, the borrow pits along the western rim of the large circle, and all mounds and other features inside the enclosures. The Boundary also includes a 30-meter-wide margin outside the enclosure walls, where possible, to encompass surviving archaeological evidence of the earthworks' construction. An approximately 90-meter arc of the large circle, along its eastern edge, closely approaches the unpaved road forming the Boundary at that location.

A 260-meter arc at the western edge of the small circle extends outside the area that can be included in the Boundary at this time, although it is protected within the Buffer Zone. It crosses a parcel that, although within the authorized boundary of the National Park, is still privately owned. It is included in a "Land Protection Plan" and is identified for acquisition from willing sellers in the future. (Aerial photography and LiDAR evidence suggest that its remains are scant at best.)

The Seip Earthworks Buffer Zone is configured to preserve the open vistas of its setting, and its connection to Paint Creek on the west and south. It extends to the authorized boundary of the National Park unit, and includes native grasslands and forests, plus privately held agricultural fields. A paved parking area and picnic shelter are adjacent to U. S. Highway 50 at the Buffer Zone's northern boundary. A paved lane leads from the parking area to the Blackstone House. An additional 1.75 kilometers of mowed trails lead visitors south to a wooden observation platform near the bank of Paint Creek. The Buffer Zone also includes the Paint Valley Public School immediately to the east of the site, preventing the encroachment of incompatible adjacent land uses, and the riparian corridor on the long, adjacent bank of Paint Creek, preserving the site's water approach and immediate natural context.

Beyond the Buffer Zone, the whole valley at Seip is a rural setting of farm fields, residential and farming structures, and the meandering Paint Creek, all set within a complete enclosure of wooded hills.

2.a-**84** The large open space inside Fort Ancient's North Fort, looking east, showing three sections of the tallest, northeastern walls and, at center, one of a set of four stone-covered mounds.

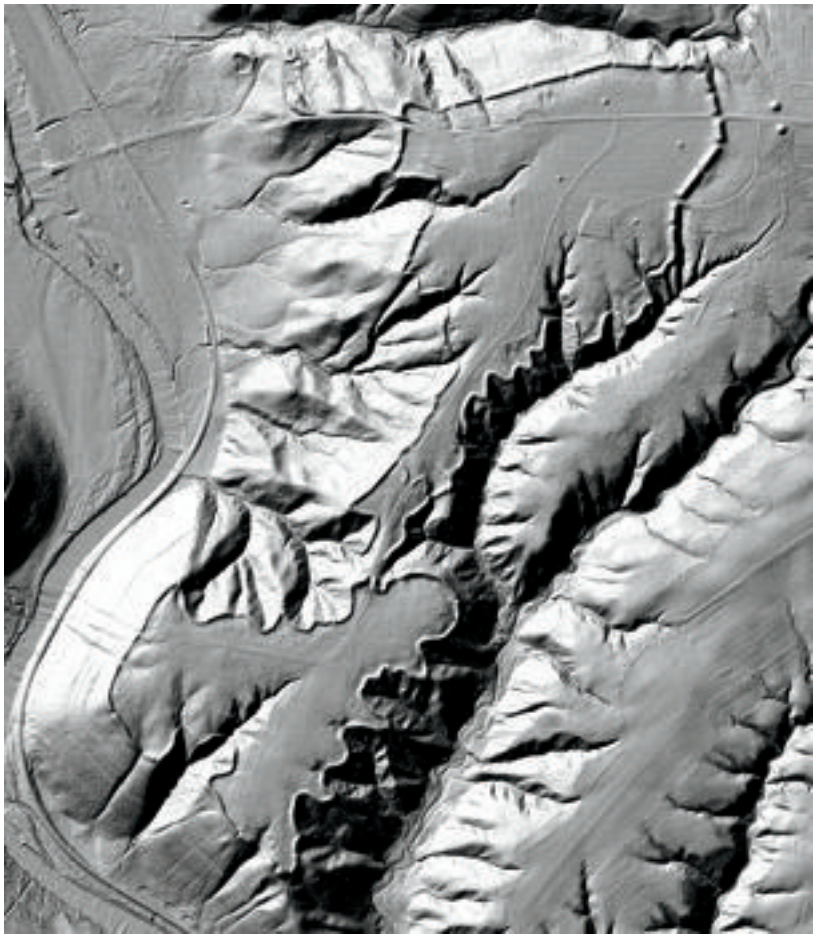
Location & Setting

Fort Ancient is the only component in this nominated series located in the Miami Valley region in southwest Ohio, where another significant concentration of Hopewell earthwork building took place. It is 77 kilometers west of Seip Earthworks, and about 10 kilometers southeast of the small city of Lebanon, the seat of Warren County, Ohio. It is built atop a steep bluff 82 meters above and overlooking the Little Miami River, 60 kilometers northeast of its confluence with the Ohio River near Cincinnati. The earthwork is surrounded on the west and south by the river's steep, wooded canyon, and on the north and east by the deep, forested ravines of two intermittent waterways, Cowan and Randall Runs. Only at a narrow neck of land toward the northeast does the earthwork connect, via an impressive gateway framed by two large mounds, to the broad and generally level upland plateau. The Little Miami and its valley are a designated state and national scenic river, and the immediate visual surroundings of Fort Ancient are entirely and densely forested, except outside on the level plateau to the northeast where there are a few widely-spaced, semi-rural residences with open lawns and fields.

Scope & Form

Fort Ancient is the largest and most elaborate of the Hopewell earthwork type referred to as hilltop enclosures, and the only one of this type in the nominated series. Hopewell hilltop enclosures are not derived from geometry but are instead related to the shapes of their unique, elevated topographic settings, to which the earthen walls generally conform (Fig. **85**). The name "forts" for this earthwork type, which dates from their first "discovery" in the early 1800s, is a misnomer, as all evidence now indicates they had ceremonial and not military functions.

Fort Ancient is formed by 5.6 kilometers of segmented embankment walls ranging in height from 1.5 to seven meters and encircling a total area of 40.41 hectares. Interior ditches accompany most of the walls, many of them lined with clay and limestone slabs to create shallow ponds. The five largest wall segments (Fig. **84**) separate the North Fort from the level terrain to the east; their accompanying ditches are instead on the exterior. The construction of the Fort Ancient earthworks used more than 420,000 cubic meters of earth and stone, for both the walls and other landscape modifications.



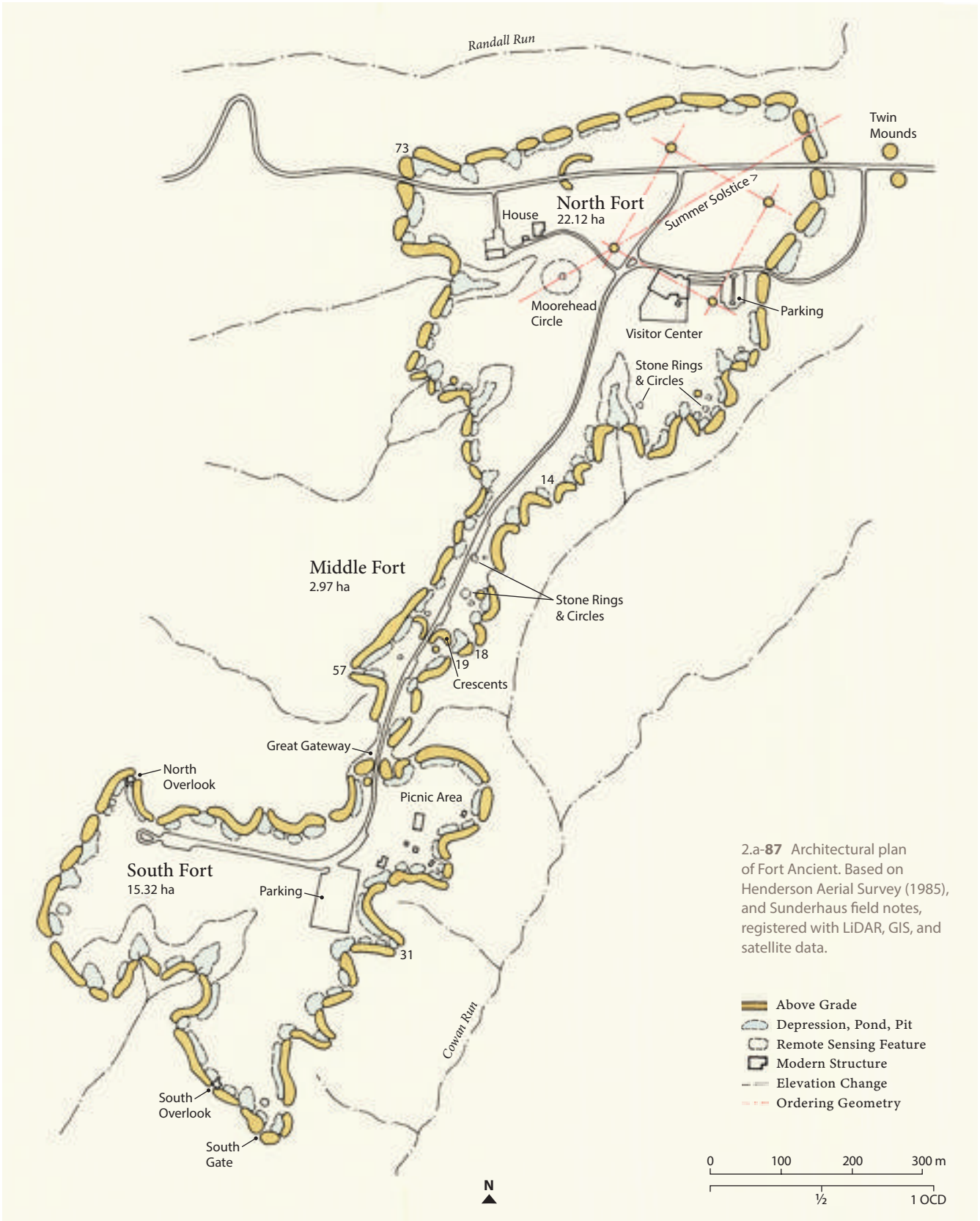
2.a-**85** LiDAR Relief map of Fort Ancient and its adjacent topography. (Image by Jarrod Burks, Ohio Valley Archaeology, Inc.)

2.a-**86** Wall segments at Fort Ancient's Gate 14, near the northern entrance to the Middle Fort.

The wall segments are separated by 84 openings, some of which create monumental gateways to the enclosure while others connect to specialized activity areas. The formal gateways exhibit a variety of features such as ramps, flanked by ponds along the interior of the walls, and paired mounds. The exterior surfaces of many of the wall segments are faced at least partially with limestone slabs. Except for the tallest walls facing the northeastern plateau, most of the others undulate along the irregular crests of the hillsides (Fig. **86**), sometimes dipping slightly below the rim.

Fort Ancient consists of two primary enclosures, the North and South Forts, and a connecting third enclosure called the Middle Fort. The roughly-triangular, 15.32-hectare South Fort is considered to be the oldest part of the site; its walls closely follow the edges of the hilltop, negotiating the many small gullies, as well as one very large ravine in the middle of its southern flank. At the southeastern extremity of the South Fort, the walls seem to swell upwards into two large, matching conical mounds, forming what is called the South Gate (Fig. **88**). These mounded walls rise to a height of six meters above the adjacent interior, while the path crossing between them attains a height of four meters. (From the crest of this monumental, elevated passageway, the remains of a limestone-paved path extend down toward the riverbank 80 vertical meters below, traversing the Buffer Zone.)

At the northern end of the South Fort, where it connects to the Middle Fort, stands another monumental gateway. Although somewhat less grand than the South Gate, it is traditionally called the Great Gateway (Fig. **89**). It is similarly formed by a pair of mounds added on top of the walls, which attain a vertical height of five meters above the adjacent South Fort



2.a-**87** Architectural plan of Fort Ancient. Based on Henderson Aerial Survey (1985), and Sunderhaus field notes, registered with LiDAR, GIS, and satellite data.

interior. A road has traversed this passage since the early 1900s, rising just over a meter as it crosses over; the resulting cuts into the gateway's mounds on either side are reinforced with short, stone retaining walls. Just south of the Great Gateway and to the west of the road is a small stone mound.

The Middle Fort frames a narrow isthmus, with a length of 420 meters, varying in width from about 60 to 100 meters (Fig. **90**). It connects the South Fort to the main plateau to the north, its southern section having been constructed by adding fill to the adjacent ravines. The earthen walls lining its irregular edges are generally smaller than those elsewhere in the North or South Forts (Figs. **91** & **92**). Near the center of this isthmus stand two

2.a-**88** The pair of large mounds forming the South Gate, and framing its elevated passage, viewed from the interior.

2.a-**89** The two mounds of the Great Gateway, viewed from the South Fort, showing the adjacent small mound at center, and the road passing through.

low, crescent-shaped earthworks, their curvatures opening southward toward the Great Gateway, and seeming to channel the movement of visitors in that direction. Within the curve of the eastern crescent is a small mound covered in stone slabs. Nearby is a cluster of stone-paved circles and rings.

The North Fort is the largest of the three segments of Fort Ancient, enclosing 22.12 hectares, and is generally considered the last to be built. Its northeastern wall segments, facing the level plateau, are the largest at the site—seven meters high and 21 meters wide at their bases (Fig. **84**). State Route 350, the early nineteenth century coach route from Lebanon to Chillicothe, crosses the northern portion of the North Fort, passing through

2.a-**90** Interior of the Middle Fort looking south, showing portions of the two crescents, one on either side of the road in the middle distance. At its furthest visible extent here, the road is rising to pass through the Great Gateway.

2.a-**91** West wall of the Middle Fort near Gate 57, from the interior.

2.a-**92** Gates 18 and 19 of the Middle Fort, from the eastern crescent.

gateways on each side. Highway upgrades over the years have resulted in these gateways being widened and cutting into the walls. The northern walls run just below the edge of a large ravine, and at the northwestern corner they rise and turn to form the site's most intact water retention pond (Fig. **93**). Where the road penetrates nearby, the adjacent walls rise to a height of nearly six meters. The western flank of the North Fort is bisected by a precipitous, wooded ravine, into which the walls pass nearly to the bottom.

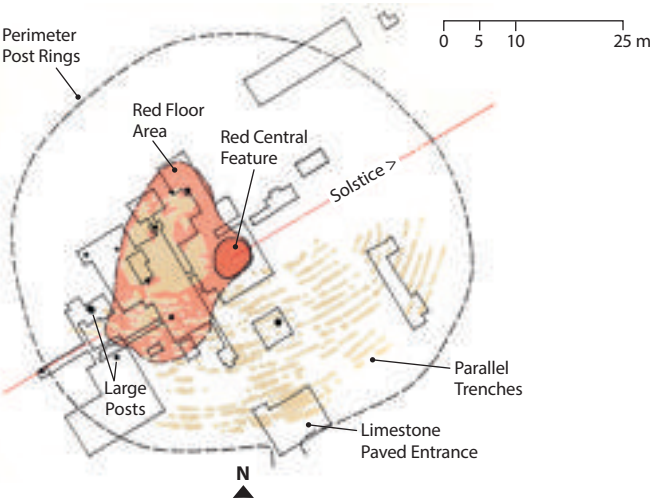
Inside the North Fort, there are additional Hopewell earthworks. A small crescent abuts the paved highway in the northern sector. Four stone-covered mounds form a near-perfect square in the open, level, eastern section (Fig. **94**). At a distance of 80 meters to the southwest from the southwesternmost of these mounds is the site of the recently discovered (2005) Moorehead Circle—the remains of a 60-meter-diameter woodhenge and its associated ritual facilities, including a central deposit of bright red soil (Fig. **95**). Several small, circular stone features have been found near the North Fort's southeastern walls.

Outside the large northeastern gateway of the North Fort, facing the plateau, stands another pair of mounds, called the Twin Mounds, 45 meters apart center-to-center, on either side of the road (Fig. **96**). Unlike the other monumental gateways at Fort Ancient, in this case mounds stand outside the walls instead of on them. The Twin Mounds are virtually identical, each standing over three meters tall and 24 meters in diameter at its base.

2.a-**93** Water-holding pond in the northwest corner of the North Fort, at Gate 73.

2.a-**94** One of four stone-covered mounds forming a one-half-OCD square in the North Fort.

2.a-**95** Composite plan of the Moorehead Circle, showing its ring of posts and red central feature. See also Section 2.b, page 187. (After Riordan and Burks)



2.a-**96** The Twin Mounds outside the primary northeastern gateway of Fort Ancient, with the highway passing between them.

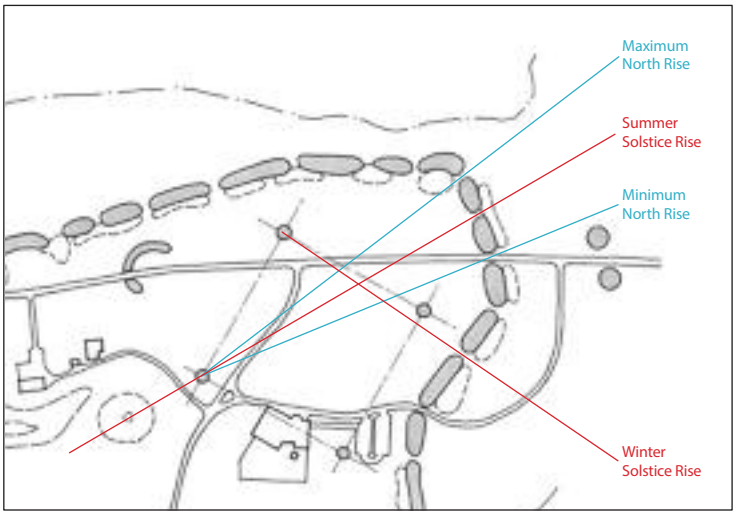
2.a-**97** Map of Fort Ancient published by Caleb Atwater in 1820, showing the now lost parallel walls extending to the northeast.

Geometry & Astronomy

In an otherwise topographically-determined conception, one decisively geometric feature stands out at Fort Ancient—the four stone-covered mounds in the large, level interior of the North Fort. Now restored and resurfaced, the nearly perfect square that they form averages 161 meters on each side, or one-half of an OCD. The southwestern mound serves as a back-sight for viewing, through three adjacent gateways toward the northeast, from left to right, the northern maximum moonrise, the summer solstice sunrise, and the northern minimum moonrise; all are within one degree of accuracy (Fig. **98**). (A view shaft through the forest has been cleared outside of the middle (solstice) gateway so that the sunrise can be visible.) From the square's northwestern mound, the winter solstice sunrise appears through another gateway of the North Fort.

Archaeology & Artifacts

Archaeological investigations in and near Fort Ancient have yielded important insights about the culture and genius of its builders. These include a better understanding of the site's construction history, wall composition, domestic areas (both inside and outside the walls), water features, large-scale landscape modifications, ritual facilities, and ceremonial uses. These investigations have explored a relatively small proportion of the site, so it can reasonably be inferred that much more remains. Fort Ancient was subjected to a relatively limited, short-lived, and shallow plow zone, meaning that the site will offer continuing new testimony to the knowledge and cultural characteristics of its builders. The discovery in 2005 of the Moorehead Circle, with its remains of unusual features, demonstrates the rich potential for new discoveries.



2.a-**98** Detail plan of the square of stone-covered mounds in the North Fort, with astronomical gateway alignments indicated; the summer solstice alignment also extends to the red central feature of the Moorehead Circle (lower left; see also Fig. **95**).

Most of the artifacts recovered from Fort Ancient are in curated collections at the Ohio History Connection in Columbus. These include bone implements, stone tools, pottery fragments, and pieces of flint and mica, as well as the Mills Collection from 1898. That collection, from a deposit found in the vicinity of the parallel walls northeast of the Twin Mounds, included 54 copper pieces (axes, breastplates, earspools, and bracelets), all of which had been bent or broken and covered with sheets of mica.

Modern Structures

The largest structure within the Fort Ancient enclosure is a 1,347-square-meter museum built in 1997 (Fig. **99**). It encompasses the footprint of a smaller museum originally built in the 1960s. The current building intrudes into the square formed by the four stone mounds, but acknowledges its importance with an angled, glazed viewing slot in alignment with two of the mounds. It houses educational materials and a timeline tour of American Indian culture and glaciation, and also provides restrooms and some food options for visitors. Behind the museum is a fenced educational garden area featuring American Indian agriculture from different eras.

The 1936 wood-frame house for the caretaker is in the western area of the North Fort (Fig. **100**). West of the caretaker's house are service buildings that house equipment and utilities for maintenance of the site. A private service road passes between these buildings, connecting State Route 350 with the rest of the site. A modern road connects the three parts of the earthwork and has parking areas distributed along its length. This road passes across the Great Gateway, whose truncated edges are reinforced with low stone retaining walls. Wooden steps and lookout platforms are provided at the northwest corner of the South Fort and about midway along the level portion of its southern flank (called the North and South Overlooks, respectively) (Figs. **101** & **102**). In the northeastern area of the South Fort is a camping, picnic, and event space consisting of standard park amenities such as shelters, a small playground, restrooms, and a concessions building. The majority of these facilities were built in the 1930s by the Civilian Conservation Corps, and remain in good condition (Fig. **103**).

There are several parking areas within the enclosure, one near the museum in the North Fort, and two more in the South Fort—a large one serving the picnic and event area and a smaller one near the North Overlook. A system of trails extends throughout the site, with a total length of 4.4 kilometers. A large entrance sign announces Fort Ancient to motorists on State Route 350 (Fig. **104**), while pedestrian-oriented information signage is installed throughout the site in connection with the trail system and to identify its major features.

Boundary & Buffer Zone

2.a-**99** The current Fort Ancient Museum.

2.a-**100** The 1930s caretaker's house and garage.

2.a-**101** The North Overlook path, steps, and platform.

2.a-**102** The South Overlook in the center distance, with earthen walls visible on either side.

The World Heritage Boundary of Fort Ancient encompasses all components necessary to convey the site's Outstanding Universal Value. These include the three "forts" of the enclosure, plus all interior areas and features. Outside the walls, it also encircles the large Twin Mounds to the northeast, and a margin of 20 meters measured outward from the walls' center-lines captures likely archaeological evidence of wall construction and degradation over time.

The Fort Ancient Buffer Zone is determined by the need to protect the site's nearly pristine setting and its lunar and solar alignments, as well as the architecture and archaeology of the earthworks proper. It therefore encompasses the wooded slopes of the Little Miami River valley below the site on the west, and extends another kilometer to the north. On the east it reaches to the bottom of the ravine of Cowan Run; to the north it encompasses both sides of the ravine of Randall Run. These thickly-wooded valley escarpments are of such an extent and configuration that they preserve views from the enclosure's gateways in all

directions. The Fort Ancient Buffer Zone also extends from 150 to 500 meters beyond the earthwork walls in the vicinity of the northeastern alignments and the path of the now-vanished parallel walls. The Ohio History Connection maintains agreements giving it the right to make first offers for additional land acquisitions in this area of semi-rural, low-density residential land use.

2.a-**103** The picnic and event area in the South Fort, with the CCC-era shelter in foreground.

2.a-**104** State Route 350 and the site's entrance sign in the North Fort.

Section 2.b:
History & Development

"The Hopewell Ceremonial Earthworks provide rare connections with truly ancient peoples, 'the Ancestors of the Ancestors.' The Ohio River Valley is the birthplace of so many cultural innovations and sacred iconography that influence even tribes today."

America Meredith
Publishing Editor
First American Art Magazine
Citizen, Cherokee Nation

History & Development

Geological & Ecological Conditions

The rich, overlapping ecological zones along this glacial seam have helped humans flourish in southern Ohio for millennia—specifically the convergence of the flat, glaciated Till Plains to the north and west, and the more rugged, unglaciated Appalachian Plateau to the east and south. The Hopewell Ceremonial Earthworks are concentrated along this boundary, where rich and diverse resources of the combined and blended ecologies helped to enable a distinct fluorescence of culture in this region. The natural landscape supported an environment in which the earthwork builders could thrive on an especially plentiful, diverse, and healthy diet.

The Till Plains offered deciduous hardwood forests including beech, maple, hickory, oak, and wild black cherry trees, plus extensive wetlands and prairies. The diverse fauna included deer, bear, beaver, and abundant fish and fresh water mussels. The Appalachian Plateau, meanwhile, with its rich soils and sheltered topography, was (and largely still is) covered in one of the most biologically diverse temperate forest regions on earth, with an unusually rich array of both canopy trees, many of them nut-bearing, and understory plants. Fauna included the same large animals—deer, bear, beaver, and wild turkey. This landscape transition, visible in the abrupt rising of prominent hills, presents itself most strikingly at today's Chillicothe, Ohio, but it is also evident at Newark, and in a comparable way among the deeply carved ravines of the Ohio River's tributaries in southwest Ohio, as at Fort Ancient.

2.b-**1** The Adena Pipe, the pre-eminent known artifact of the Adena culture, found in a mound on the Adena Estate near Chillicothe, Ohio. (Ohio History Connection)

2.b-**2** The Conus Mound in Marietta, Ohio, a surviving and comparatively large example of a typical Adena burial mound, surrounded by an earthen ring. (Engraving by Squier and Davis)

1 3 4 5 6 7 8

Pre-Hopewell Cultures
13,000 BCE –1 CE

While much of North America was still covered by glaciers, the earliest of the continent's human population was arriving from Asia, spreading eastward and southward. People were in the Ohio Valley as early as 15,000 years ago, living in wandering bands, gathering plants, and hunting. The distinctive spear points of these Paleoindians, as they are now called, have been found among the bones of long extinct Ice Age animals like the mastodon. Apart from their spear points, little archaeological evidence of these people has been found.

When the glaciers retreated, the tundra and pine-dominated forests of eastern North America were replaced by the "Eastern Woodland" ecology of today—hardwood forests threaded by many rivers and streams. During the Archaic period, from about 8000 BCE, people adapted to the changing climate by exploiting new foods and settling in semi-permanent camps, generally near waterways. They mastered the efficient exploitation of wild food resources such as deer, nuts, roots, and various native plants. They also began experimenting with small-scale horticulture, which by about 800 BCE was transitioning to what is known today as the Woodland Period and the Adena culture.

The Woodland Period (ca. 800 BCE to 900 CE) is generally divided into Early, Middle, and Late phases. The first of these corresponds to the Adena culture (Fig. **1**), extending to about the year 100 CE. The first burial mounds in the Ohio Valley mark these new

beliefs and customs, along with pottery making, elaborate ceremonial practices, beautiful artifacts created in exotic raw materials such as copper and marine shell, and evidence of an increasing commitment to agriculture and a more settled way of life. A stronger sense of community is also evident in their substantial earthen architecture: monumental mounds, ditches, and rings (Fig. **2**), of which there were thousands spread across the region. Some of these later became incorporated into far larger and more complex Hopewell earthworks. The Adena culture is named after the Chillicothe estate of Ohio's first senator and third governor, Thomas Worthington, on whose land archaeologists first identified its distinctive characteristics in 1906, and found the remarkable Adena Pipe.

Adena achievements and ways of life show a clear continuity into those of the Hopewell, which overlap them in both years and territory. This transition was occurring in Ohio roughly 1,500 to 1,000 years later than the building of the Monumental Earthworks of Poverty Point (in northeastern Louisiana, about 1,200 kilometers to the southwest), and about 1,000 years earlier than the great urban center of Cahokia (in western Illinois, about 700 kilometers to the west). These other Indigenous North American earthwork sites are discussed in the Comparative Analysis.

Hopewell Culture
1 CE–400 CE

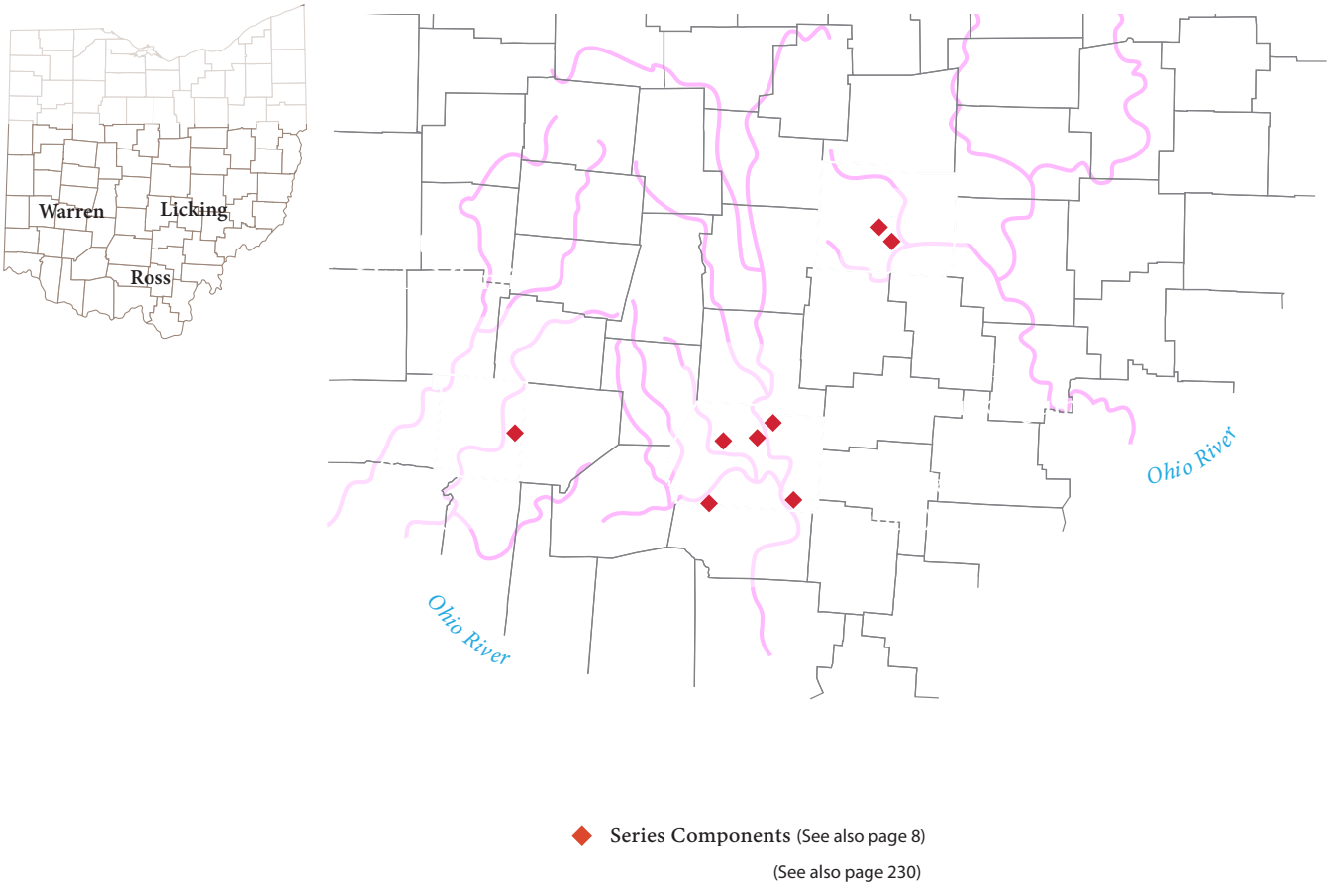
By the year 1 CE, the Middle Woodland period had ushered in the increasingly elaborate Hopewell culture which dominated the Miami, Muskingum, and Scioto watersheds, and influenced many regions beyond. People began to assemble here over many generations, creating the elaborate earthwork complexes as places of assembly, ceremony, and burial.

The Hopewell heartland corresponds to what is today southern and central Ohio, extending across an area of about 320 by 160 kilometers. Within that, most earthwork-building activity occurred in three regional clusters—along the Great and Little Miami rivers to the west, among the Muskingum's upper tributaries to the north, and in the Scioto and Paint valleys in the south central part of the state (Fig. **3**). Nineteenth-century reports (Squier and Davis among others) documented nine hilltop "forts" and 37 geometric enclosures of substantial size or complexity, and that are now known to be Hopewell in origin. Besides the nominated sites, seven of the former and five of the latter are extant to some degree, and are included in the Comparative Analysis (See pages 229–235). (In 1911, archaeologist William Mills identified nearly 500 other ancient earthen "enclosures" of various kinds in Ohio; the vast majority were small circles or clusters, many likely of Adena origin.)

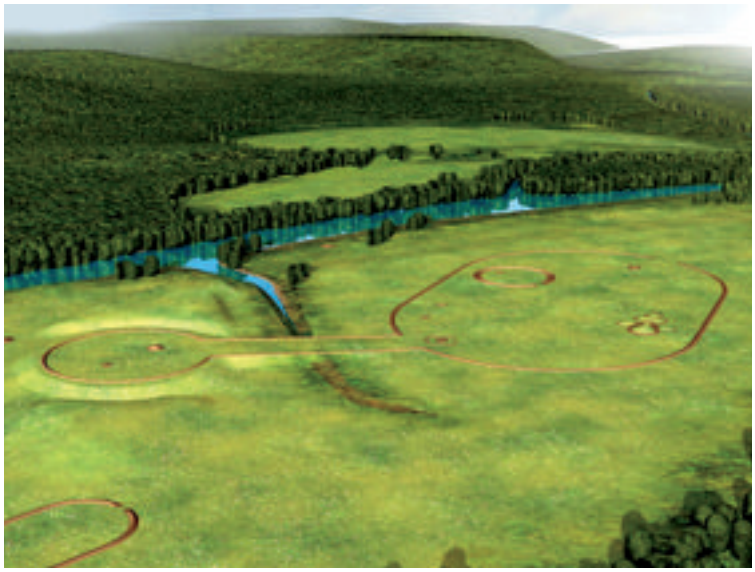
In the Great and Little Miami River watersheds, hilltop works were dominant, notably Miami Fort, Fortified Hill, and the Pollock Works. Just east of what is now Cincinnati was a significant cluster of geometric sites, comprising the Milford and Turner Earthworks (both now destroyed, although Turner (Fig. **4**) yielded ritual artifacts surpassed only by those from Seip, Mound City, and Hopewell). The terrace where downtown Cincinnati now stands was also covered in geometric embankments, with several large mounds.

Major earthwork building in the Muskingum River system was limited to its point of confluence with the Ohio, where the elaborate Marietta Earthworks stood, and to the convergence of its upper tributaries in and near what is now Licking County. The Newark Earthworks were the only significant geometric complex in this area, although there are several relatively small hilltop works, the most notable being Glenford Fort. Also in the immediate proximity are the Flint Ridge quarries, whose rainbow-colored stone has been prized across eastern North America for more than ten thousand years.

The lower Scioto valley contained by far the largest number of major geometric earthworks. These included, from north to south, Circleville, whose now-destroyed work gave the town its name; the whole series of sites in the Chillicothe vicinity; the Seal Township works, about halfway to the Ohio confluence; and finally the elaborate Portsmouth complex, which extended across the Ohio River into Kentucky. West of Chillicothe, the valley of Paint Creek held Seip, Baum, and Spruce Hill, while along its North Fork were the now-lost Frankfort Works, and the Hopewell Mound Group.



2.b-**3** Concentrations of Hopewell settlement and earthwork building activity within the culture's Ohio heartland. (After Pacheco and Dancey).



2.b-**4** Computer rendering of the now-lost Turner Earthworks, located along the Little Miami River in the eastern suburbs of Cincinnati. (The Ancient Ohio Trail)

The nominated sites are the outstanding surviving examples from these three regional clusters within the Hopewell heartland – Fort Ancient on the Little Miami, Newark's Octagon and Great Circle on the upper Muskingum tributaries, and the five remaining sites along the central Scioto River (Mound City, Hopeton, and High Bank), Paint Creek (Seip), and its North Fork (Hopewell).

Across this region, the scale and complexity of Hopewell monumental architecture increased dramatically compared to that of the Adena; its geometric and astronomical precision embodied generations of accumulated knowledge. While Adena circles had been more like community "churches" serving a local congregation, Hopewell earthworks were monumental "cathedrals" serving a much larger and far-reaching community. The sacred rituals took place in often huge and elaborate timber shrine buildings, later dismantled and covered with the carefully mounded layers of earth visible today. Within their earthwork sites, and among the remains of these buildings, they left elaborate burials, altars, and beautifully crafted objects.

The Hopewell culture was not a single group of people, but instead a religious movement that linked many distinct communities, likely with differing languages, scattered across much of eastern North America. Although the Hopewell heartland was in southern Ohio, evidence of their sphere of influence extends not only to these diverse eastern woodland groups, but also to much more distant places.

Long-distance expeditions are evident from the spectacular artifacts found at these sites, made from mica, copper, obsidian, and seashells brought from what is now North Carolina, Michigan, Wyoming, and the coast of the Gulf of Mexico, respectively (Fig. **5**). These exotic materials accumulated at the Ohio ceremonial centers, apparently without corresponding trade goods returning to their places of origin. This may well suggest pilgrimages to the Hopewell heartland by devotees from afar, and long-distance quests by sojourners from Ohio returning with tokens of spiritual power and prestige.

2.b-**5** Map identifying the exotic materials found in Hopewell Ohio, and their distant sources throughout North America.

Widespread Hopewell interactions are also evident from cultural practices as far away as Illinois, the Lower Mississippi Valley, and the southern Appalachian summits. These areas are beyond the range of linguistic unity, yet identical forms were present: designs for log-lined tombs, and motifs on locally-made pottery as specific as spoon-billed birds. Perhaps most striking is the use of characteristically Hopewell bi-cymbal earspools (Fig. **6**). Making these complicated objects required shared, specialized knowledge, as well as copper from far-away Lake Superior. Their distinctive use in burials (held in the hands, as well as on the ears) demonstrates shared meanings and beliefs about the uses of visual symbols and regalia.

All of this rich cultural activity, along with the monumental earthworks themselves, was achieved by otherwise dispersed groups of egalitarian hunter-gatherers. Their subsistence economy combined hunting, fishing, and gathering, with important advances in the development of pre-maize agriculture. Besides benefitting from the Ohio region's rich ecologies, they dramatically increased the clearing of forests for the cultivation of crops —mainly swidden fields of native starchy- and oily-seeded plants such as maygrass, goosefoot, sunflower, and squash.

Daily life occurred in small, hamlet-sized settlements of just a few households, dispersed along the floodplains and terraces of the major river valleys. These in turn were organized by kinship into lineages and clans forming local communities occupying territories extending from six to eleven kilometers. Several functionally distinct ceremonial grounds marked by mounds and earthworks were built within each local community. Regional peer polities as large as 40 kilometers brought together several local communities, whose alliances were symbolized in part by burying their honored dead together in huge, multi-chambered charnel houses, such as those beneath the Seip-Pricer Mound and Mound 25 at the Hopewell Mound Group.

Those honored dead reflected the relatively egalitarian structure of Hopewell leadership, which was situational and only moderately institutionalized, as is known from comparative studies of graves, grave goods, and the contents of ceremonial deposits. Hopewell authority was distributed among many kinds of leaders, whose complementary roles and domains

of action were generally sacred rather than secular. Shaman or shaman-like leaders called on the powers of nature and their relationships with other-than-human beings to serve client and community needs. The exquisitely crafted objects and exotic raw materials helped establish ties of obligation and reciprocity; the prestige they reflected helped to secure commitment to cooperative projects, including mound and earthwork construction.

Hopewell social organization is thus very different from the centralized, hierarchical, and hereditary chiefs who later ruled Cahokia and other Mississippian towns and cities. There were no large settlements, and no large dwelling houses or "palaces." Studies of skeletal markers of physiological or dietary stress, infections, disease, or trauma, show that everyone, even people buried with much honorific regalia, ate the same foods and worked just as hard as everyone else. Finally, there is no systematic evidence for children having been buried as "chiefs," indicating that there was no tradition of inherited leadership status.

2.b-**6** Bi-cymbal earspools, characteristic of those found at widely separated Hopewell-influenced sites across eastern North America. (Ohio History Connection)

2.b-**7** Model of the Fort Ancient culture village (circa 1000–1450) at the SunWatch Museum, near Dayton, Ohio.

2.b-**8** Reconstructed dwellng at SunWatch Village.

Post-Hopewell Indigenous Cultures
400 CE–1650 CE

By about 400 CE, forests were reclaiming the hilltop and geometric earthworks. The sites were being used less frequently by then, and no new ones were being built. Over the following centuries, archaeobotanical evidence suggests that the interplay of erosion and deposition of organic matter would have, in effect, maintained the earthwork forms at very nearly their original size, albeit scarred somewhat by the repeated action of fallen, decaying, and uprooted trees.

There is evidence of biological and cultural continuity of American Indian groups into this Late Woodland period, at least from 400 CE to perhaps about 650 CE; it seems the people did not move away or die off, but stopped building mounds or conducting the associated ceremonies. The focus of community and ritual life began shifting from the ceremonial center to the village (Figs. **7** & **8**). They planted larger gardens and began hunting with bow and arrow.

After about 650 CE, the cultural continuities seem to have diminished. Through all these centuries, however, the later American Indian cultures continued to use the earthwork landscapes; the archaeological evidence reflects mostly incidental uses for hunting, gathering, and farming. In the Late Woodland period, the so-called Intrusive Mound culture placed their own burials into the Hopewell mounds and earthworks.

Around 900 CE, the forests in the region were being more widely cleared to accommodate the intensive, large-scale cultivation of maize. From about 1000 until 1650, the Fort Ancient culture (so called because one of their villages was found within the much older, Hopewell-era walls of Fort Ancient) shifted to a sedentary, village-based, agriculturalist way of life. These practices were shared with contemporaneous groups along the Mississippi River, including the builders of Cahokia (Cahokia Mounds State Historic Site, 700 kilometers to the west in Illinois, and inscribed on the World Heritage List in 1982). Many villages of the Fort Ancient culture were comprised of circular or rectangular houses surrounding an open central plaza. By the early 1500s, the people had largely withdrawn from the tributary valleys and coalesced into fewer and larger settlements along the main valley corridor of the Ohio River.

By 1550, European goods such as glass beads, brass and copper kettles, and iron nails and axes began to appear in the Ohio Valley, and within one hundred years the region was largely depopulated. Indeed, probably more than 80% of all North American Indigenous peoples died from European diseases within a few decades following the arrival of Columbus and de Soto, as new and virulent infectious diseases swept across the continent from village to village along traditional trade routes ahead of the advancing foreigners. These devastating epidemics were followed by Iroquois military incursions, which displaced the surviving groups to refuges largely outside the region.

Early Euro-American Settlement
1650–1890

By the time Euro-Americans (mostly British and French) began to establish more permanent forts and trading posts in the Ohio country around 1650, the region had been repopulated by several historically documented tribes including the Delaware, Iroquois (Seneca-Cayuga), Miami, Ottawa, Shawnee, and Wyandotte. Most of these groups were recent arrivals themselves, though some may have had an earlier homeland in Ohio. They were maintaining small farms, growing corn, beans, squash, and pumpkins. There were also a few large towns (Fig. **9**). Yet on the earthwork sites, the forests had long been re-established.

All this tragic, sudden death and disruption helps explain why, by the time of Euro-American contact in the Ohio region, there seemed to be no knowledge of the ancient earth-building traditions and meanings; either it was lost, or the remaining Indigenous people were unwilling to share it. As more settlers crossed the Appalachian Mountains into the Ohio Valley, from the late 1700s onward, new conflicts, more epidemics, forced acculturation, and finally forced removal, followed apace.

Yet despite the upheavals of plague, war, and colonization, there are accounts from the time of European contact and later that indicate an awareness by Indigenous people of the existence of the earthworks, and of a range of attitudes about them, notably reverence and respect. Glenna Wallace, Chief of the Eastern Shawnee Tribe, has written that her ancestors "treasured" the earthworks, and while acknowledging that her people may not have built them, "they loved them, protected them, revered them. They knew their importance, and these earthworks were sacred to them." And archaeologist Warren K. Moorehead, the man most responsible for preserving Fort Ancient, recorded a story heard in his youth that the pioneer Simon Kenton had often observed groups of Shawnee Indians visiting Fort Ancient on their way to the Ohio river, in order to pay homage to the spirits of its makers.

2.b-**9** Painting of Lower Shawnee Town, a large Indigenous settlement on the site of today's Portsmouth, Ohio, at the time of the arrival of the first Euro-Americans. (Portsmouth Mural image by Robert Dafford)

In 1763, the Treaty of Paris transferred control of the Ohio region from France to Great Britain, and it became part of what the British intended as an "Indian Reserve" stretching from the Appalachian Mountains to the Mississippi River. But regardless of this restriction, European settlement began, and then greatly increased following the American Revolutionary War (1776–1783), when Britain ceded the region to the newly established United States of America.

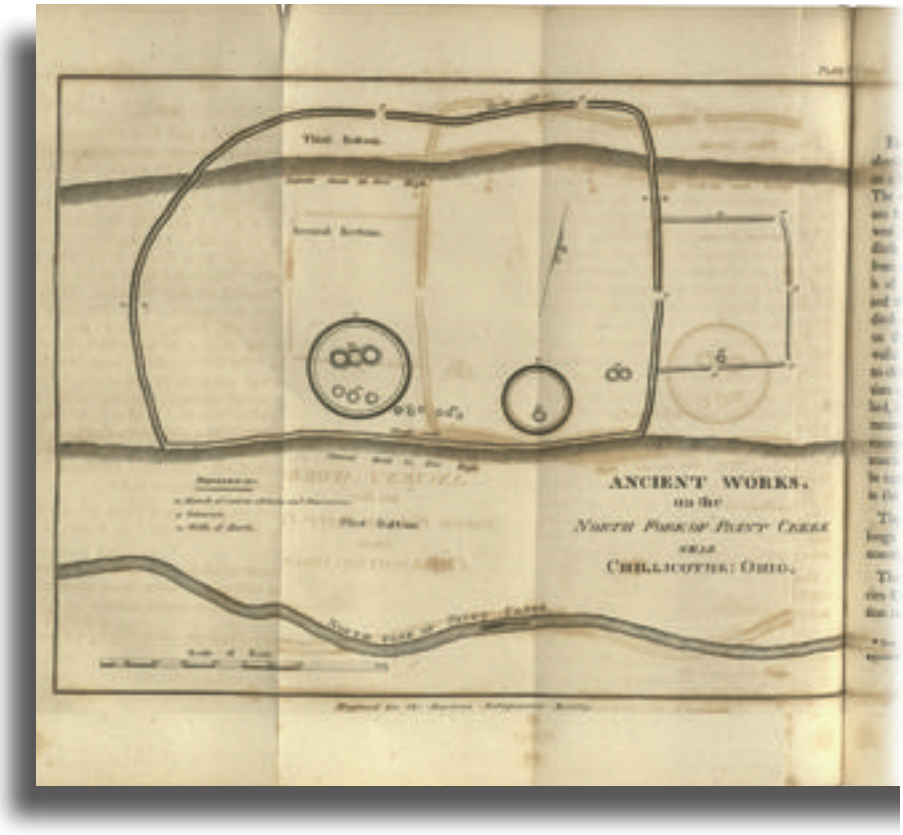
The new nation immediately opened to settlement what was then known as the Northwest Territory, and determined that the Indian tribes then living in the region must relinquish their claims to the land. This sparked much conflict and eventually the Northwest Indian War, in which the U. S. government fought for a decade against a confederation of fifteen Indian tribes including the Miami, Wyandotte, and Shawnee, finally ending with the U. S. victory at the Battle of Fallen Timbers in 1795. The treaty that followed extinguished American Indian land claims throughout southern Ohio.

As settlement began, the lands on which most of the nominated sites stand were part of the post-Revolutionary-War "Virginia Military District"—a vast area between the Scioto and Little Miami Rivers and encompassing much of southwestern Ohio. In the absence of cash, the new government used land as payment to Virginia veterans for their service in the war. Irregular parcels were surveyed following the Virginia custom of "metes and bounds;" these are referenced in the ownership histories that follow.

By 1800, Euro-Americans were settling in ever larger numbers in the Muskingum, Scioto, and Miami River valleys, establishing towns, clearing forests, and planting large farms for wheat, corn, and livestock. Towns and road networks (and soon after, canals) transformed the landscape and the earthworks. These forces accelerated rapidly over the following decades, to the point where a policy of Indian removal was implemented. The U. S. and Wyandotte Tribe treaty of 1842 required the last of the Indigenous population to give up their lands in Ohio and Michigan, and to be removed to "Indian territory" west of the Mississippi River—what later became the state of Oklahoma.

The new settlers were quick to build among the earthworks, since they often stood on ideal sites for the establishment and growth of towns, with good access to water and superb agricultural lands. Forests were rapidly cleared for farmland, firewood, lumber, and various other products; by the mid-1800s, they had been largely clear-cut. As many of the earthwork sites went into agricultural use, their walls began to be degraded.

Towns in the region grew rapidly throughout the 1800s. By the end of the century, they had developed an increasing commitment to industry as well as agriculture. Canals in the early part of the century, and railroads from the 1840s onward, fostered the rapid development of commercial and transportation corridors in the major valleys. Populations boomed. Of the major Hopewell earthwork complexes that were documented throughout the nineteenth century, most of them in the path of these growing cities and towns did not survive (at Cincinnati and Circleville, Ohio, for example) or did so only in small preserved fragments (at Marietta and Portsmouth). At Chillicothe, though, only Works East was entirely destroyed; the other major geometric earthworks there stood well beyond the periphery of the growing town. At Newark, far-sighted citizens successfully preserved the two most spectacular features of the original complex.



2.b-**10** Caleb Atwater's 1820 map of the earthworks that would become known, after the 1890s, as the Hopewell Mound Group.

Early Archaeological Investigations
1820–1916

European encounters with the Hopewell earthworks were first documented in the 1780s. François-René Vicomte de Chateaubriand referred, for example, in his *Discussion historique sur les ruines trouvées au bord de l'Ohio*, to the "extraordinary monuments (that) have been discovered on the banks of the Muskingum, Miami, Wabash, Ohio, and especially the Scioto rivers." But it was not until the early 1800s that real scientific investigations began. The first Europeans in the Ohio Valley had been impressed by the earthworks, but were quick to classify them according to their own ideas. David McClure wrote in 1772, "On the subject of appearances like fortifications, which are found all over the country of the Ohio... They are very ancient artificial works, for the present inhabitants can give no account of the builders, or the design of them. Some suppose them to have been intended for places of Public Worship; but the more probable conjecture is that they were built for defense..."

Systematic documentation and study began in 1820, when Circleville, Ohio, postmaster Caleb Atwater documented these earthworks in his "Description of Antiquities Discovered in the State of Ohio and Other Western States." Published as a 160-page report in the first volume of the *Transactions and Collections of the American Antiquarian Society*, Atwater's work mapped and described sites throughout the Ohio Valley region, including the Hopewell Mound Group (Fig. **10**), Seip Earthworks, Fort Ancient, and the Newark Earthworks. Atwater continued to assume that the earthworks had been built as defensive structures.

Throughout the nineteenth century, the earthworks and "moundbuilders" of Ohio fascinated explorers, scholars, and the general public, and fostered spirited national controversies. Gradually it became doubtful that the earthworks were forts; nor did the growing evidence suggest that anyone other than ancient American Indians had built them. Yet racism and ignorance led many Euro-Americans to concoct bizarre theories that they were built by transplanted Egyptians, or Israelites, or a Welsh tribe, or the Vikings. Under the name of

various "Myths of the Moundbuilders," these notions confused the study and appreciation of the earthworks, even as much good documentation work was being done. This confusion continued well into the twentieth century and stubbornly persists even today.

Meanwhile, the founders of the United States knew and admired the Ohio earthworks. Thomas Jefferson read Atwater's report and wrote to the president of the American Antiquarian Society congratulating them on this important publication, and expressing his hope that "...the monuments of the character and condition of the people who preceded us in the occupation of this great country will be rescued from oblivion before they will have entirely disappeared." George Washington, having surveyed lands in the Ohio valley himself, also argued for their preservation. Jefferson's Secretary of the Treasury was Albert Gallatin, another eager scholar of ancient America, and among the first to credit these works to American Indians, and to express disgust for those who belittled their achievements. He said, "These allegations of superiority of race and destiny...are but pretenses under which to disguise ambition, cupidity, or silly vanity."

Public interest in the earthworks peaked by the mid-1800s, when Ephraim Squier and Dr. Edwin Davis, a newspaper editor and physician, respectively, from Chillicothe, Ohio, set out to survey the earthworks of the entire Mississippi and Ohio river system. Supported by Gallatin, their magisterial volume, *Ancient Monuments of the Mississippi Valley,* documented hundreds of sites, and became the first publication of the newly founded Smithsonian Institution in 1848. Today, their elegant measured drawings (Fig. **11**), extensively used in this document, are the best guides we have for many of the sites that have vanished.

From the pioneering work of Atwater, Squier and Davis, and many others over the following decades, the Hopewell Ceremonial Earthworks became significant for their association with the origins of American scientific archaeology. The complexes included in this nomination were among the first archaeological landscapes to open the eyes of Euro-Americans, and scholars worldwide, to the long and rich Indigenous history of the country. The work of Squier and Davis in particular was an archaeological milestone, revealing that some earthwork complexes were associated with mortuary activities and contained elaborate and beautiful objects made from exotic materials brought from far away. Forty years later, in 1889, Cyrus Thomas, also of the Smithsonian, described and surveyed the major remnants of the Newark Earthworks, Hopeton Earthworks, and High Bank Works, improving on the accuracy of previous measurements.

By the late 1800s, increasingly scientific archaeology was being practiced at the earthwork sites. Frederic Ward Putnam, Curator of the Peabody Museum of Archaeology and Ethnology at Harvard University and "the father of American archaeology," traveled to Ohio to investigate at Serpent Mound and the now-lost Turner Earthworks on the Little Miami. He vigorously encouraged publicity, funding, preservation, and further studies of American antiquity. Putnam curated the spectacular, newly-uncovered artifacts from the Hopewell Mound Group for the 1893 World's Columbian Exposition in Chicago, which did much to establish American antiquity and its investigation as a topic of widespread and lasting importance.

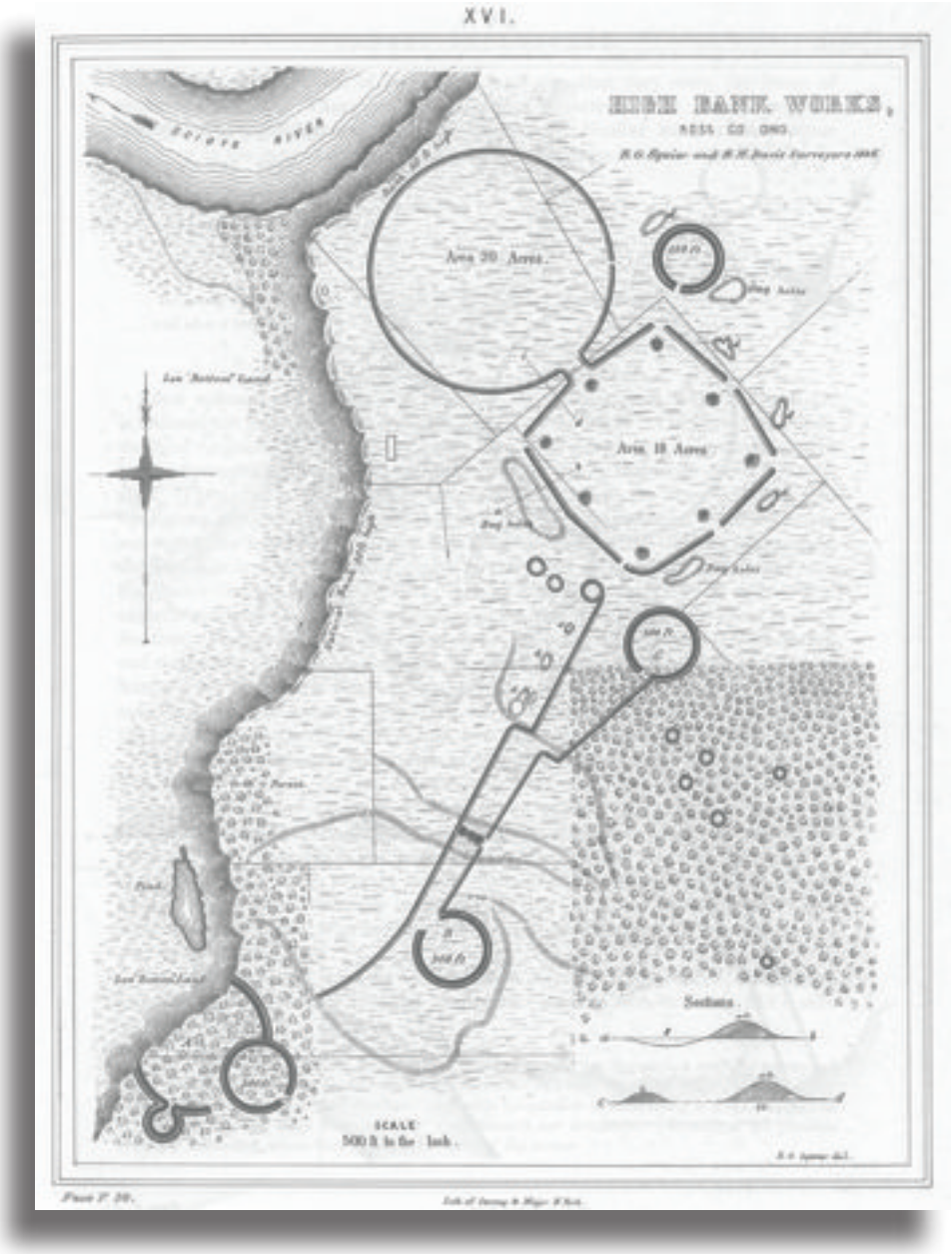


Fig. 2.b-**11** Squier and Davis's engraved plan of the High Bank Works, including wall sections, and a variety of outlying works to the southwest that were still detectable in the 1840s.

The Twentieth Century & Public Ownership

Though the canals were gradually abandoned between the 1890s and the 1930s, increases in the number of automobiles, roads, and highways continued to spur the expansion of towns and suburbs. Fort Ancient was sufficiently rural to escape the growth of towns, but both Newark and Chillicothe saw significant expansion, accelerating more rapidly during the middle decades of the twentieth century. Newark's two protected earthworks became surrounded by modest, early-to-mid twentieth century houses, which have remained largely unchanged to the present. Fort Ancient, High Bank, and Seip were far enough from urban development to remain largely unaffected. Mound City occupied the center of a large tract of federal land, given over in this period to large institutional uses (prisons), from which it could be easily shielded. By the last quarter of the century, Hopeton and Hopewell were beginning to seem vulnerable to the urban pressures of Chillicothe's growth.

The Ohio State Archaeological and Historical Society (as the Ohio History Connection was called until 1954—abbreviated OSAHS) managed Fort Ancient beginning in 1890, after it was acquired as Ohio's first State Park. Licking County acquired the Great Circle Earthworks for preservation in 1854, and the City of Newark acquired the Octagon Earthworks as public land in 1892; both of these were transferred to the OSAHS in 1933. Used for a variety of public and quasi-public functions during those years, both Newark sites have been very well preserved.

Mound City became federal property in 1917 for use as an army camp, and was designated Mound City Group National Monument in 1923. As a State Park in 1925, it came under the management of the OSAHS and was opened to visitors in 1929. Management was transferred to the National Park Service in 1946. When Hopewell Culture National Historical Park was established in 1992, Mound City was joined by Hopeton Earthworks, and by other new park units at Hopewell Mound Group, Seip Earthworks, and High Bank Works. Most of the Hopewell Mound Group had been purchased by the Archaeological Conservancy in 1980, before becoming National Park property in 1992; its final parcels were added in 2000 and 2016. Seip Earthworks had been an Ohio State Memorial since 1927, maintained and managed by the Ohio History Connection until its transfer to the National Park Service in 2014.

American Indian Engagement

The absence of tribes from Ohio since their final removal in the 1840s, and the generally fraught history of relations between the government and American Indians, have limited formalized Indigenous involvement with the sites and their current owners until relatively recently. Over the past two to three decades, the National Park Service, and the Ohio History Connection, and Ohio-connected tribes have, through increased and concerted effort, deepened engagement with each other. Together with other partners, they have created strong relationships and intentional processes for American Indian involvement in the sites' interpretation and management. These developments are described more fully in Section 5.

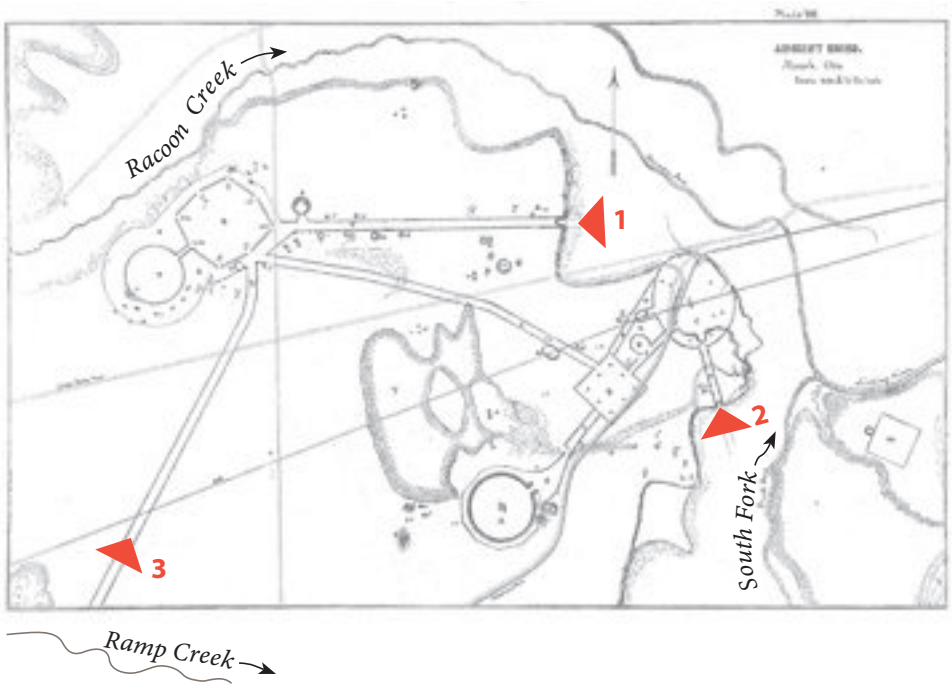
The Newark Earthworks

The histories of Newark's Octagon and Great Circle Earthworks, the two nominated components of the former Newark Earthworks complex, require first a review of their original relationships to that entire, 1,165-hectare ensemble, and a brief history of the processes by which they have survived as its two best-preserved components.

Forests, Prairies, Water

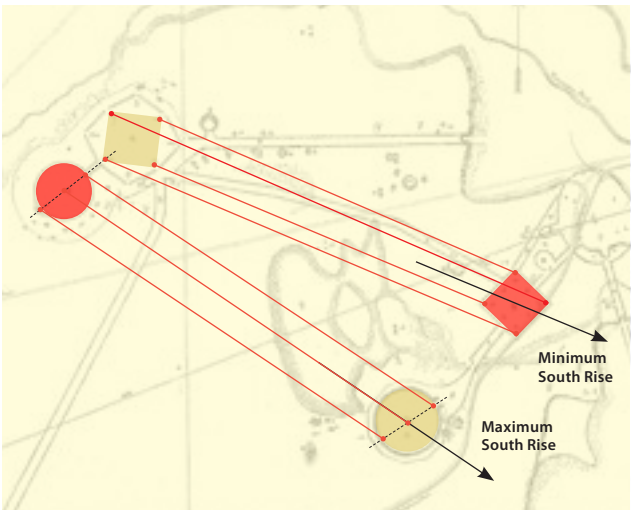
The mature oak-hickory forests of ancient Ohio were interrupted by large prairie openings, both naturally and with maintenance by humans. Pollen analyses have shown that the Great Circle was constructed over a long-established grassland with scattered oak trees. Prior to the earthworks, the Newark area had been a well-developed prairie for hundreds and perhaps thousands of years. The earthwork builders maintained and enlarged it to help increase the density of game animals, to open up clear views of the nearby horizons, and to construct their monuments.

The high, level terrace at Newark is surrounded on three sides at close range by waterways, originally with a large marshy lake near its center. The geometric elements of the complex hugged the perimeter of this large terrace, and low, earthen lines framed roadways connecting them to each other and to the surrounding scarps. These lines also formed a complete, continuous perimeter around the entire complex, leaving only three points where visitors could enter without climbing over walls (Fig. **12**). Each entrance gave access to a parallel-walled ceremonial avenue from one of the three surrounding waterways: Raccoon Creek to the north, the South Fork of the Licking River to the east, and Ramp Creek to the south.



2.b-**12** The Salisbury map of the Newark complex, showing the now mostly vanished continuous perimeter walls, and identifying the three "entrances" from nearby waterways.

This suggests that visitors tended to arrive by river, and/or that purification ceremonies involving river waters were a necessary precondition to entering the earthworks. Once inside the complex, movement was directed from one enclosure to another within the wide, parallel-walled roadways. The connections to water, together with the sophisticated astronomical alignments encoded in the earthworks, and the very earth used to construct them, seem to evoke the three-layered cosmos as conceived in many American Indian traditions—the Above World; the Middle or Earth World on which we live; and the watery Beneath World.



2.b-**13** Diagram of the geometrical and angular relations among the elements of the Newark Earthworks complex. In addition to the matched areas and perimeters cited and diagrammed in Figure 2.a-**28**, page 63, key points on the principal figures displace key vertices and points in perfect angular alignments that also mark the minimum and maximum southern lunar rise points. The centers of each set of related figures were also six OCDs apart.

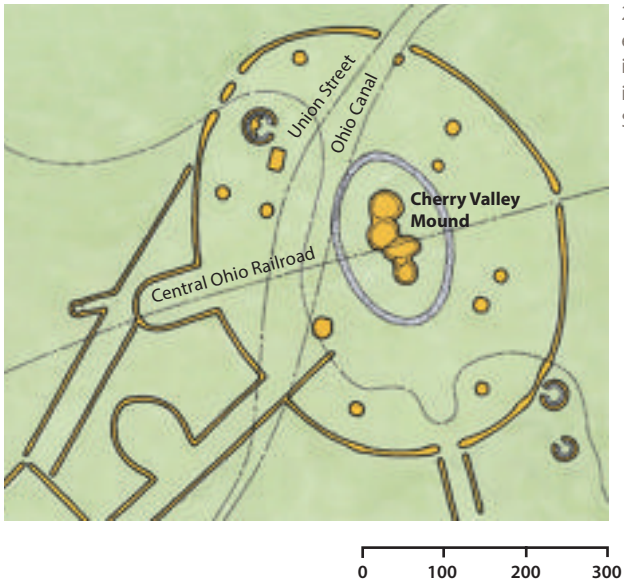
Construction Scope & Methods

The site of the Newark Earthworks was an exceptionally broad, high, flat, alluvial terrace which, like others in the region, provided generally well-drained soils and was beyond the reach of floods. The prairie landscape meant that only limited tree clearing was necessary. For most of the complex, site preparation began with the removal of the sod and topsoil from the area where they planned to build. The Great Circle, however, was built directly on an unprepared surface, preserving the ancient prairie soil beneath. The entire complex required excavating and moving nearly two hundred thousand cubic meters of soil. The builders used simple tools like pointed digging sticks, shell hoes, and hoes or picks made with a deer shoulder blade attached to a wooden handle.

The soil was carried in baskets from various locations, depending on the type needed for each feature of the design, and deposited to create these vast earthen figures. The builders had a mastery of the properties of each type of soil, and their prospectors knew where in the nearby environment to find whatever they needed, whether it be clay of a particular color, or sand, gravel, or large cobbles. At the edge of Newark's Octagon, there is a steep terrace bluff overlooking Raccoon Creek; mining soil there would have been quite easy by simply pulling it off the face of the hillside into the baskets, and carrying it up the short embankment.

Loss & Preservation

From the end of the Hopewell era about 400 CE, until the arrival of the first Euro-American settlers at the end of the 1700s, the earthworks at Newark were largely reforested, except for a relict wet prairie around the large pond at the center of the complex. Even though no longer an active ceremonial center, their huge and precise forms would have been obvious to later American Indian groups. During the Late Woodland period, there was a resurgence of interest in the earthworks, and it is probable that portions of the site were used for small scale ceremonies such as the interments by the Intrusive Mound culture.



2.b-**14** Map of the no-longer-extant Cherry Valley Ellipse with its enclosed mounds as recorded in the nineteenth century. (After Salisbury)

The nineteenth and early twentieth centuries brought increasing agriculture and then urban and industrial development, which gradually reduced the Newark complex to three discontinuous archaeological preserves. Two of these are the sites being nominated here; the third is the Wright Earthworks, which contain a small fragment of the square and an adjacent connecting wall. Nearly all remains of the parallel-walled ceremonial avenues have disappeared, as have the two other major geometric and ritual features of the complex—the Cherry Valley Ellipse and the Wright Square. What is known of their development and loss will be covered briefly here before the more detailed histories of the nominated components.

The long sets of parallel walls linking the geometric figures together were generally less than one meter high, and averaged 55 meters apart; they suggest processional rituals among the several parts of the complex. Small remnants of these walls remain near the southern edge of the Octagon. From that same location, another set of parallel walls once extended in a straight course to the south-southwest. Now known as the Great Hopewell Road, these lines were traced by surveyors in the nineteenth century for a distance of ten kilometers, and were visible for 27 kilometers in 1930 aerial reconnaissance. Their bearing is exactly towards the cluster of similar earthworks at modern Chillicothe, about 100 kilometers away.

The Salisbury map depicts how these connecting parallel walls also continued and surrounded the Octagon, the Observatory Circle, and the Great Circle. Two small sections of these enclosing perimeter walls have been reconstructed, north and east of the Great Circle's gateway.

The Cherry Valley Ellipse was the center of mortuary activity at Newark (Fig. **14**). The elliptical enclosure, 549 meters in its long dimension, contained eleven burial mounds of various sizes and shapes, a small circular enclosure, and a flat-topped platform mound. This area was Newark's necropolis, equivalent in function to what survives at Mound City. The largest and centrally located burial mound, called the Cherry Valley Mound,

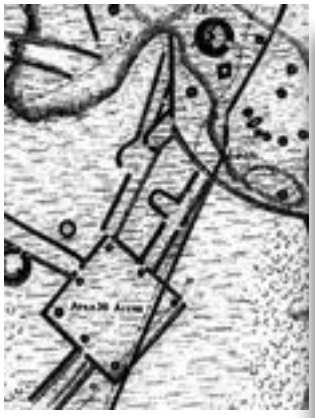
2.b-**15** The Shaman of Newark. (On loan to the Ohio History Connection, courtesy of the Estate of Dr. Edmund Carpenter)

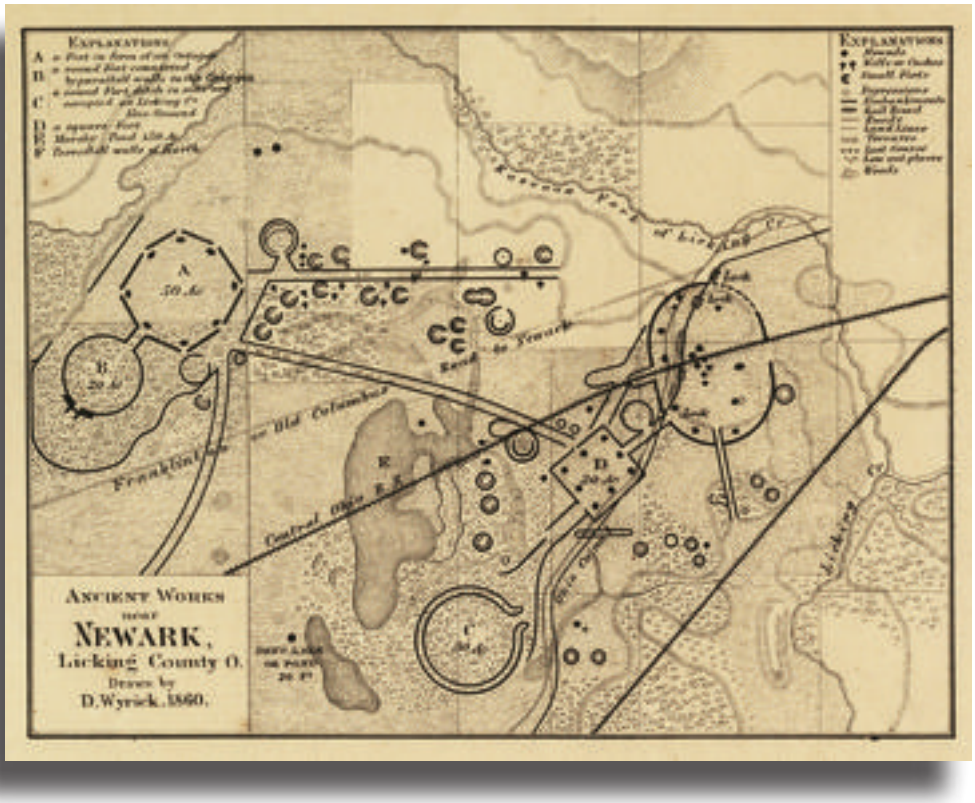
had an irregular or conjoined shape. None of the mounds in the ellipse were ever studied by archaeologists, so little is known of their burials or ceremonial deposits. One report described one of the mounds as having fourteen burials, laid out with an estimated "fifteen to twenty bushels of mica sheets." Any such materials or artifacts that may have been retrieved from the burials in the ellipse are now lost, except for one: the extraordinary figurine called The Shaman of Newark (Fig. **15**).

Southwest from the ellipse, at a distance of about 300 meters, the Wright Square was an essentially perfect, 284-meter square enclosure. Its two sets of opposing walls were out of parallel by only 0.5 and 0.16 degree, respectively. The square contained eight small mounds, standing equidistant inside each of its four corners and the midpoints of its four sides, as is typical of other Hopewell squares. A remnant of one of the square's sides is preserved at the Wright Earthworks, together with a short segment of an adjacent wall that framed the passage toward the Cherry Valley Ellipse. Originally, other sets of parallel walls made the square the only major element of the complex that was connected directly to all the others. Matched angles, areas, and perimeters involving the square suggest ancient Newark's remarkable unity of design (See Sidebar, page 137).

2.b-**16** Detail of the Squier and Davis map of the Newark Earthworks (1848), showing the canal intersecting the square and the Cherry Valley Ellipse.

2.b-**17** David Wyrick's map of 1860, the comparable area of detail is at the upper right; also compare to the Salisbury map illustrated in Fig. 2.a-**5**, page 46. (Ohio History Connection)





Euro-American Settlement around 1800

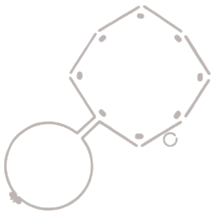
Before 1800, the lands of Licking County were surveyed and partitioned as compensation for veterans of the American Revolutionary War (part of the U. S. Military District), putting the largely re-forested earthworks into the hands of speculators and settlers. Parts of ancient Newark's square and ellipse were destroyed as early as the 1820s by the construction of the Ohio and Erie Canal. At least one of the burial mounds was taken down to make way for one of its locks. The completed canal provided an artery for further development into the 1830s, and the rest of the ellipse and its mounded tombs disappeared as Newark grew around them. The building of the Central Ohio Railroad in the 1840s accelerated this process, and the Cherry Valley Ellipse site became the center of industrial activity in Newark.

Squier and Davis's *Ancient Monuments of the Mississippi Valley* featured the Newark Earthworks prominently (Figs. **16** & **20**). Their map of the complex was based on a survey by Charles Whittlesey initiated in 1836; it shows the canal passing through the earthworks, as well as the road (modern Newark's West Main Street) running between the major enclosures and cutting through two sets of parallel walls. When this map of Newark was published in 1848, the authors noted that the "...ancient lines can now be traced only at intervals, among gardens and outhouses. ...A few years hence, the residents upon the spot will be compelled to resort to this map, to ascertain the character of the works which occupied the very ground upon which they stand."

By 1860, when David Wyrick made his map (Fig. **17**), more of the site was under cultivation and the Central Ohio Railroad had sliced through the middle of the cluster of burial mounds. The largest and most central of the mounds was cut in half and other mounds were used to provide soil for building up the railroad embankment. James and Charles Salisbury's careful survey in 1862 could only be based on flattened remnants of mounds, and scattered traces of the outer perimeter and parallel walls. By that time, only the Great Circle and the Octagon Earthworks remained largely intact.

When these nineteenth-century maps are compared to aerial photographs today, two things become clear. The first is that the Salisbury map is by far the most accurate; it registers almost perfectly on top of the modern images. The second is that for large parts of the Newark Earthworks, Squier and Davis were correct when they warned that much would disappear. Yet they were overly pessimistic. A few far-sighted citizens of Newark worked to preserve parts of this wonder of the ancient world, and found surprising ways to incorporate the most spectacular of its remnants into the contemporary landscape.

The three surviving pieces of the Newark Earthworks were recognized collectively as a National Historic Landmark in July of 1964. The application noted that "the three remaining portions, now operating as Ohio State Memorial Parks..." are among "the best remaining evidence for the masterful construction of large geometric structures by the Hopewell..." Two of these are components of the nominated Property; their histories follow.

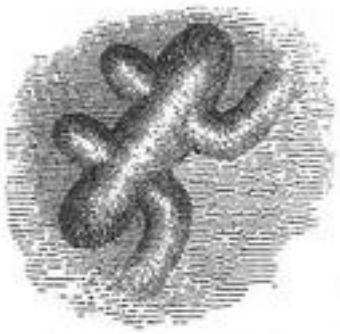


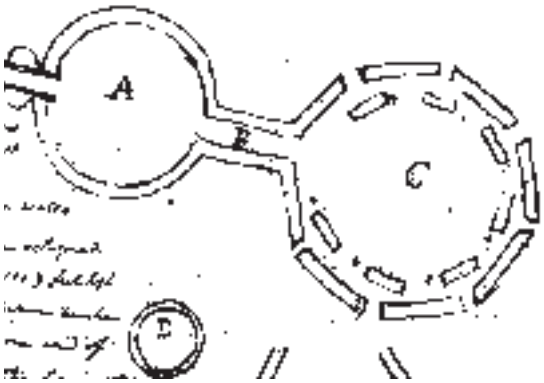
Construction Sequence & Methods

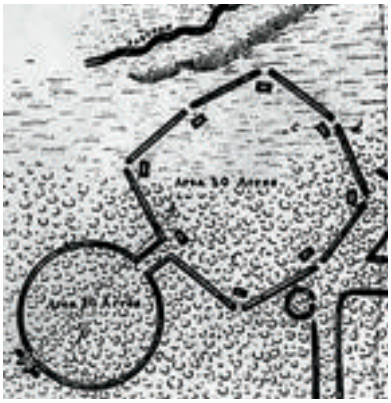
There is insufficient archaeological research to allow for speculation about the construction processes used to build the Octagon Earthworks. Their precision, however, indicates the use of a standardized system of measurement and a distinct vocabulary of earthwork figures, profiles, and sizes, that are likely to have developed over years of experimentation at other sites, especially in the Scioto Valley, before being applied with such consummate perfection here at Newark.

The many lunar alignments encoded in the Octagon Earthworks would have required a process of setting and re-setting timber posts, to test and record key fore-sight and back-sight positions over generations of careful observation, before the investment of labor in building the walls. An 1815 map of the earthworks indicates a "cavity" beside each of the Octagon's gateway mounds (Fig. **19**); one of these has since been confirmed as associated with a timber post—very possibly placed to mark or test alignment positions.

The Observatory Mound appears to have been the final addition to the earthwork, since it lies across what would have originally been an entrance gateway similar to that of the Great Circle—two parallel wall extensions framing an opening (Fig. **18**).







Preservation & Uses

Both the Great Circle and the Octagon Earthworks remain well preserved because there were citizens who cared about them, and who found ways to adapt them to military and entertainment functions. Some of the Octagon site was cleared for farming before 1848, and plowing occurred in some parts of the octagonal enclosure (Fig. **20**). The Squier and Davis map, which dates to that year, showed that the forest had retreated southward across the site as agricultural fields expanded.

In 1888, William H. Holmes resurveyed the Newark Earthworks for the United States Bureau of Ethnology and determined that, although the northern portions of the Octagon Earthworks were in cultivation, they still were "quite distinct," and that "most of the south half is yet in the original forest and has never been injured by the plow."

The Octagon Earthworks were rescued from further destruction four years later, when a group of civic-minded individuals proposed purchasing the land and presenting it to the State of Ohio for use by the Ohio State Militia (now the National Guard). The militia occupied the site, called Camp McKinley, between 1893 and 1908; during the summers as many as 3,500 soldiers camped within the circle (Fig. **21**). They mounted cannons on the walls, likely contributing to the popular misconception that the earthworks were ancient fortifications. The troops also worked to restore the damage done to the earthen walls prior to their arrival. Some of this work was in error; for example, one of the walls of the Octagon appears to have been lengthened by about nine meters, possibly in a misguided effort to make the structure more symmetrical than intended by the original builders.

By 1908, the State Militia had outgrown the Octagon Earthworks and moved to another location, returning the property to the City of Newark. At that point, many in the community wanted the earthworks to become a city park, but a group of prominent business leaders proposed instead to turn it into a country club. The city had no funds to develop and maintain the property as a park, and the club's advocates agreed to keep the grounds open to the public (Fig. **22**). So, the Newark Board of Trade leased the property to the Moundbuilders County Club, which opened in June of 1911. That same year, the county club built their clubhouse straddling the Observatory Circle, cutting the embankment in at least one location to provide an entrance to the building.

In 1933, the Licking County Commissioners transferred ownership of the Octagon Earthworks (or "Country Club Grounds" as it was also known) to the OSAHS (now Ohio History Connection), which continued the lease arrangement with the country club.

The club added a swimming pool in 1959, just outside the southern rim of the Observatory Circle. Four years later, the original clubhouse was demolished and construction began on a new one, which was completed the following year. In the process, approximately 30 meters of the southeastern rim of the Observatory Circle were removed and displaced slightly to the northwest, also opening a gateway for golf carts

2.b-**18** *Opposite Left:* Detail drawing from Squier and Davis of the Observatory Mound, showing how it lies across the former gateway into the Observatory Circle.

2.b-**19** *Opposite Middle:* Map of the Newark Octagon by Robert Walsh (1815), with black dots indicating the "cavity" features next to the gateway mounds.

2.b-**20** *Opposite Right:* Detail of the Squier and Davis map of 1848, showing the extent of agricultural clearing in the vicinity of the Octagon Earthworks.

2.b-**21** *Right:* National Guard Encampment at the Octagon, circa 1895. (Ohio History Connection)

(Fig. **23**). This displacement was confirmed in 1990, when the opening was widened to allow two golf carts to pass though. Excavations at that time revealed that the earthen wall at this location had been rebuilt with modern fill, including bricks from the demolished clubhouse.

During 1968 and 1969, the golf course links were remodeled, adding asphalt paths over the earthwork walls at eight locations, irrigation lines to provide water for the greens, low earthen platforms for several of the tees, and about two dozen sand-filled bunkers (Figs. **24** & **25**).

2.b-**22** The Avenue and Octagon gateway in 1911, prior to the golf club's tree planting program. (Ohio History Conenction)

Recent Research, Site Access

In the 1970s and 1980s, meticulous surveys by Professors Ray Hively and Robert Horn of Earlham College first established the eight principal lunar alignments defined by the walls, corners, and axes of the Octagon Earthworks.

In 1990, the Ohio History Connection constructed an observation platform overlooking the parallel walls of the Avenue connecting the two geometric enclosures, and included with it several interpretive panels.

In 1994, Ohio History Connection archaeologists conducted excavations within the southern corner of the Octagon prior to the expansion of the Moundbuilders Country Club maintenance facility. They discovered the remains of a large pit located

2.a-**23** The golf clubhouse, showing its proximity to the slightly displaced section of the Observatory Circle, and the widened passage for golf carts. (Photo by Bradley T. Lepper)

2.a-**24** Elevated tee platform in the avenue near where it joins the Octagon.

2.a-**25** Sand-filled bunker, near the avenue's northwestern wall.

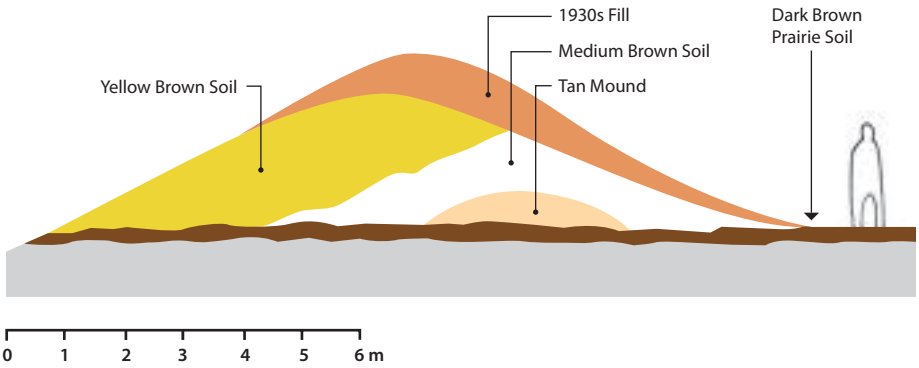
immediately adjacent to the platform mound, corresponding to the location where Robert Walsh, in 1815, had documented a "sunken well" (Fig. **19**). The pit, and its central posthole, produced radiocarbon dates of 260 and 400 CE, respectively. This excavation (Fig. **26**) demonstrated that in spite of all the superficial disturbances that have taken place at the Octagon Earthworks, there is still considerable integrity to the archaeological record at the site.

In 2018, the Ohio History Connection instituted legal action to acquire the Moundbuilders Country Club's leasehold on the Octagon Earthworks and restore full public access to the site.

2.b-**26** Excavation (1994) of the pit corresponding to one of the "cavities" identified on Robert Walsh's 1815 map. It was 1.7 meters wide, 40 centimeters deep, and partially filled with gravel; it had an eight centimeter posthole at its center. (Photo by Bradley T. Lepper, Ohio History Connection)

Construction Sequence & Methods

Though far larger, the form of the Great Circle is typical of many earlier, Adena earthworks—a ring with an interior ditch and a gateway opening generally eastward. In 1992, an excavation through the Great Circle embankment wall uncovered the buried soil surface on which construction began. Pollen and other evidence showed that it was an open prairie landscape surrounded by an oak and hickory forest. The excavated profile also allowed archaeologists to infer the construction sequence. First a series of small mounds were placed around in a circle. Then the ditch was dug about four meters inside the ring of mounds, and its dark colored soil used to overlay and connect the series of mounds, forming a circular embankment. Finally, yellow gravelly soil was brought in from the deep pit just outside the enclosure to the east, and used to cover the interior surface of the earthen wall (Fig. **27**). It is not known whether the contrasting colors were part of the original architectural presentation of the earthwork, or if they were allowed to be obscured by vegetation and so may have served a hidden ceremonial purpose.



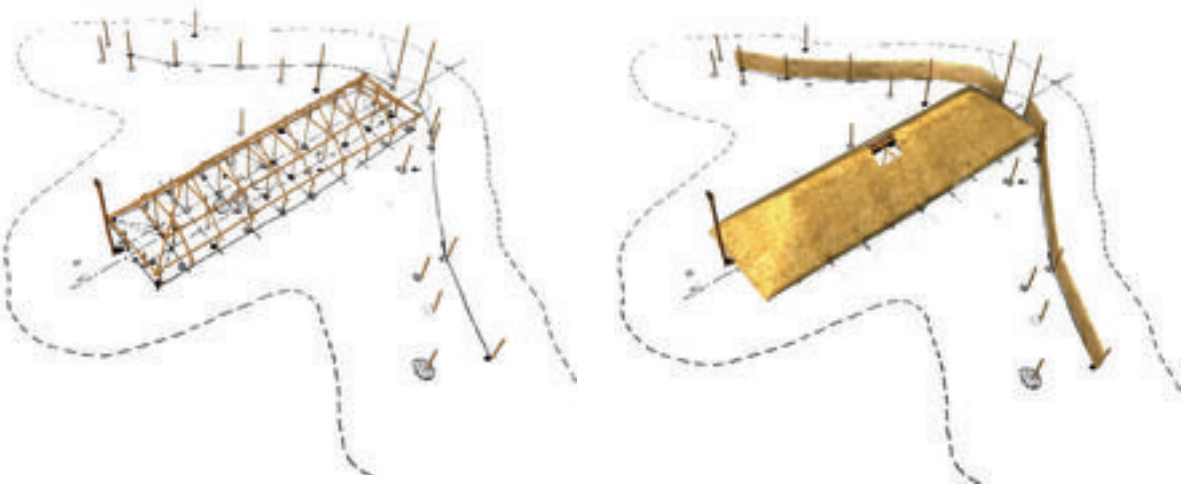
2.b-**27** Cross Section of the Great Circle wall, showing soil types and layers.

The inner ditch was engineered to hold water. When Caleb Atwater visited the site in 1820, it was still functioning—he noted it was "half filled." An investigation undertaken by the OSAHS in 1887 found that the ditch was lined with "fine gravel and cobble stone" and that there was a stone "pavement on the inner margin of the ditch." Besides providing some of the soil for the wall, this circular ditch was clearly an intentional water feature; it would have presented an inverted reflection of the earthwork and the sky, offering the celebrants symbolic visual access to the watery Beneath World of American Indian belief.

At the center of the Great Circle, the conjoined form of the Eagle Mound covers the posthole remains of what had been a 30- by 7-meter, timber-framed building, with screen-walls extending from it like two wings (Fig. **28**). Inside, near the center of this structure was a large, shallow, rectangular basin lined with fire-hardened clay. It was similar to the "altars" or crematory basins found in other Hopewell mounds, but in this case there were no traces of human bones in the sand that filled it. As at other sites, when they were finished, the builders dismantled the wooden structure, or burned it, and covered its floor with earth to form the mound. (These large shrine buildings, such as those also found under mounds at Seip, Hopewell, and Mound City, described below, were

2.b-**28** Reconstruction diagrams of the Eagle Mound Big House with the outline of the finished mound's perimeter. (The Ancient Ohio Trail)

generally multi-functional civic and ceremonial structures. They are referred to here as "Big Houses" after the Shawnee term "M'sikamekwi" or "big house framework"—monumental, roofed, timber temples devoted to altars, ceremonial relics, and often human remains.)



Preservation & Uses

Following the end of the Hopewell era around 400 CE, forests reclaimed the site. No evidence of intervening use or occupation by later Indigenous people has been found. The earliest record of Euro-American contact with the Great Circle was in 1800, after which it was soon preserved in its untouched condition, thanks to the efforts of Nathan Seymour, its first owner. Seymour did not allow the interior of the enclosure to be plowed, nor did he cut the old growth trees within the encircling wall and ditch.

In 1854, the Great Circle became the Licking County Fairgrounds (Fig. **29**), with a half-mile long horse racing track, a grandstand, and buildings for livestock and other attractions. These remained in use until 1933.

In October of 1861, the fair was suspended while the Great Circle served as Camp John Sherman, used for training the 76th Ohio Volunteer Infantry Regiment during the United States Civil War. In 1884, "Buffalo Bill's Wild West Show" came to the Fairgrounds. With thousands of Licking County residents sitting on the earthen embankments, Buffalo Bill himself and his whole crew rode in and out of the grand gateway; he said it was the most amazing place he ever did the show.

James Lingafelter, a local banker, established a summer resort on the site in 1898. Called Idlewilde Park, it became central Ohio's premiere amusement park throughout the next decade (Fig. **30**). The attractions included a Ferris wheel, a "Switchback Railroad" (what's now called a roller coaster), a casino, a theater, bowling alleys, shooting galleries, a dancing pavilion, a billiard hall, four ponds with boating and swimming (including the borrow pit outside the earthwork), and a "European" hotel and restaurant. Even with all of these facilities, the promoters of Idlewilde Park declared that its "crowning glory" was the "mysterious Old Fort" itself.

2.b-**29** Nineteenth-century image of the Great Circle hosting the Ohio State Fair in 1854. (Courtesy, American Antiquarian Society)

In 1931, a group of fifteen "Tama Indians" (now called the Meskwaki Nation) visited Newark as part of the King Brothers' Wild West Rodeo. They camped at the Great Circle fairgrounds, setting up their tepees near the horse barns. A reporter from the *Newark Advocate and American Tribune* interviewed Chief John Buffalo and wrote that the Indians were "greatly enthused and excited over the mounds. They did not expect to find anything of the kind in Newark." Chief Buffalo was reported to have said, "The mounds are many thousands of moons old. Nobody can tell how old. It took plenty work to raise them. Indians had no shovels, picks or wheel barrows when mounds were made. Had to use tools made from bones of big animals. Took lots of time to build mounds." The article stated that Chief Buffalo intended to have "photographs made of the mounds with his Indians grouped on them to send back to his folks on the western reservation."

In 1933, the County Commissioners deeded the Great Circle over to the OSAHS. The same year, work began under the direction of Emerson Greenman, its curator of archaeology, to restore the walls where they had been worn down, restore the Eagle Mound, and prepare for the removal of the fairgrounds buildings. In 1934, the Civilian Conservation Corps (the United States government's Depression Era work program, the "CCC") began a three-year program to complete the restorations (Fig. **31**), remove the fairgrounds buildings and

2.b-**30** The Great Circle Earthworks' monumental gateway in its "Idlewilde Park" days. (Ohio History Connection)

racetrack, and build a superintendent's house and maintenance shop on the northern edge of the property (Fig. **32**). The restorations were mainly informed by the descriptions given by Squier and Davis in the late 1840s, and included the small crescent behind the Eagle Mound, now thought not to be original to the design. The construction of all the fairgrounds facilities, as well as their demolition, undoubtedly had some impact on the archaeological resources within the Great Circle, but CCC blueprints for the restoration work indicate that with minor localized exceptions, they were left remarkably intact.

The structures remaining today from the CCC period are the old superintendent's house, now the management building for the Newark Earthworks State Memorial, and a picnic shelter near the northwest corner of the property.

The Museum & Parking

The Ohio History Connection constructed the Ohio Indian Art Museum outside the gateway to the Great Circle in 1971. A large bronze model of the Newark Earthworks complex was mounted on a concrete pedestal in front of its entrance, and a network of asphalt paths were built for access from the parking lots. During 1985–1986, the Ohio Department of Transportation widened the nearby highway, State Route 79, which required the construction of a new vehicular entrance and a new parking lot.

2.b-**31** The Civilian Conservation Corps at work in the 1930s restoring of the Great Circle. (Ohio History Connection)

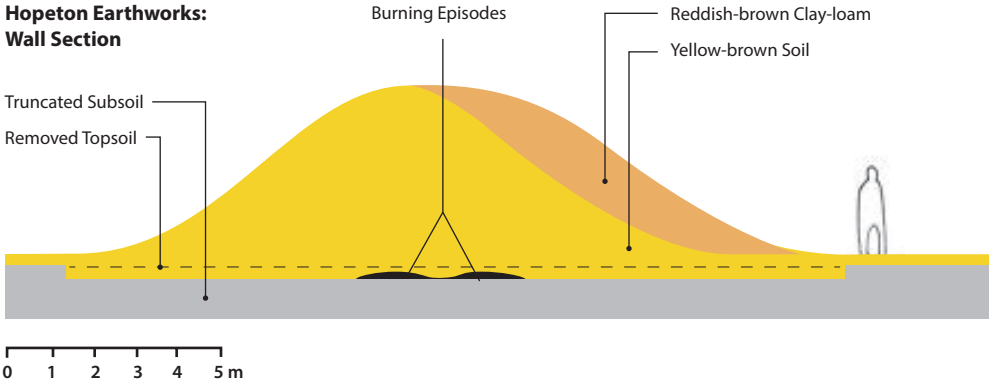
2.b-**32** CCC Camp Mound Builders Superintendent's House, at right, and Maintenance Building, at left, built in the 1930s at the northern edge of the Great Circle grounds.

Construction Sequence & Methods

The Hopeton Earthworks were built on a large, level, glacial-outwash terrace of the Scioto River. The circle's five wall segments, and the square's eleven, were built at different times though apparently according to a coherent overall plan. Hopeton is among the best-dated Hopewell earthworks, with more than 30 radiocarbon dates from earthwork contexts indicating that the peak of activity was between 1 and 250 CE. Even so, little is known for certain about how quickly the complex was built, though there is evidence suggesting that the large circle was created first.

Each segment was constructed in a single event, though in several distinct episodes. Construction began with the removal of the topsoil to create a uniform surface, on which small fires were kindled, and then often buried while still burning. Then, soils were laid down in a specific, cross-sectional pattern; distinct boundaries were maintained between two (or sometimes among three) homogeneous soil types. Most often, yellow-brown silt loam soils were placed first, to form the core and the interior aspect of the wall. Then reddish-brown clay loam soils were laid up along the exterior surface. (Figs. **33** & **34**).

2.b-**33** An excavation trench through the wall of the square at Hopeton (2002), showing the distinct, homogenous layers of yellowish and red-brown soils. (Photo by Mark J. Lynott, National Park Service)



2.b-**34** *Above:* Cross section of one of the Hopeton square's eleven segments, showing its construction sequence and soil placements.

At Hopeton's large circle, this meticulous process of wall construction was either preceded or followed by the erection of a series of monumental timber posts set at 6-meter intervals along the inside edge of the embankment, creating a truly gigantic woodhenge. Each post had been set in a straight-sided pit to a depth of 1.2 meters. When they were later removed, the holes were backfilled with soil (Fig. **35**). Evidence suggests that the posts themselves were about 46 centimeters in diameter, and 3.5–5 meters tall.

When first measured in the nineteenth century, the circular earthwork wall was 1.5 meters tall and 9 meters wide. In comparison, the walls of the adjacent, irregular square were built up to a height of 4 meters, with a base width of 15 meters. The long parallel walls extending to the river (Fig. **38**), and the two smaller circles on the upper terrace adjacent to the square, were lower. Much of the earthen wall architecture at Hopeton still stands at about one-third of its original height.

Artifact distributions recorded from systematic surface surveys provide evidence of specialized activity areas nearby, outside the earthwork walls (in the Buffer Zone). Areas inside the enclosures were kept clean of debris.

There were at least intermittent periods of occupation on the terrace surrounding the earthworks during the Late Woodland period (400-1000 CE) and beyond, up until about 1500 CE. A few radiocarbon dates from earthwork contexts at about 1000 CE suggest some

2.b-**35** Excavation trench (2017) exposing the dark stained profile of one of the postholes of the Hopeton woodhenge. (Photo by Timothy Everhart, National Park Service)

Indigenous peoples may have re-used or altered portions of the earthwork itself. There is no archaeological evidence of Indigenous occupation at the Hopeton Earthworks after 1500 CE. Like all of the Hopewell earthworks, the walls at Hopeton were subsumed by the region's native hardwood forests in the final centuries before Euro-American colonization.

Early Settlement, Archaeology

Hopeton was among the first Hopewell earthworks brought to the attention of a wide audience. A map was published in 1809 in *The Port Folio*, a monthly review published in New York and Philadelphia, signed only with the initials "J.C." This map identifies the landowner as Thomas Worthington, who received these lands as payment for his service surveying the Virginia Military District.

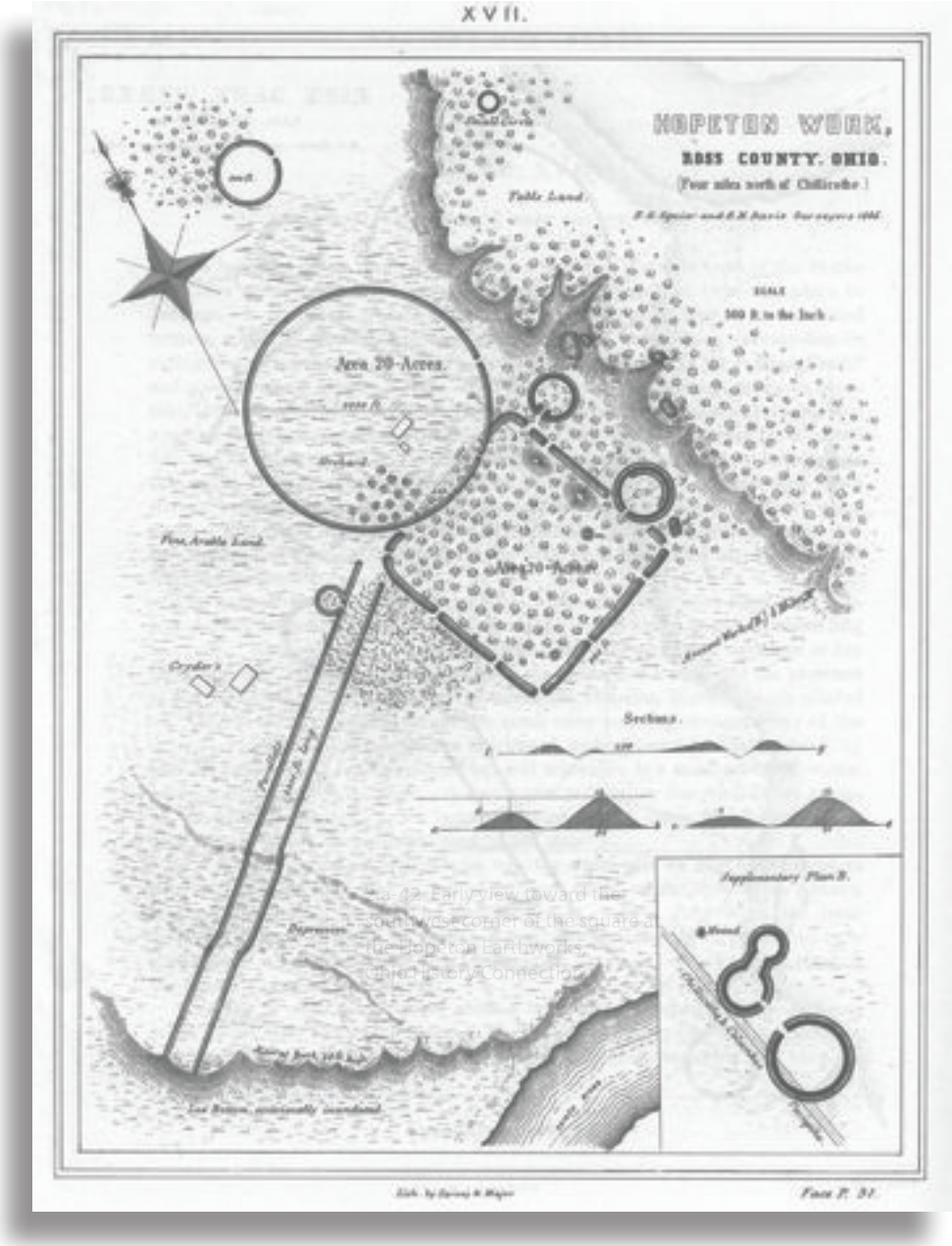
Beginning in the early 1800s, with additions and alterations continuing into the 1820s, a cluster of structures known as the Cryder Farm was built west of Hopeton Earthworks. The buildings were eventually demolished, but the sandstone foundation of the original house remains (in the Buffer Zone). By the time of Squier and Davis's documentation of the site in 1846 (called Hopeton Work at the time, Figs. **36** & **38**), after only three or four decades of farming on the land, parts of the walls were already being reduced in height and spread in width. Their map reveals, in addition to the Cryder farm to the west, two other structures and an orchard standing within the large circular earthwork. They noted that although the circle had "been much reduced of late years by the plough, it is still about five feet (1.5 meters) in average height."

After 40 additional years of annual plowing, Hopeton Earthworks, along with High Bank Works, were described and surveyed by Cyrus Thomas of the Smithsonian Institution in 1889. In his "The Circular, Square, and Octagonal Earthworks of Ohio," he noted that, "The only parts of this group we notice here are the large circle and the connected square.... The walls of the circle and square are yet very distinct, and with the exception of a single break in the circle can be readily traced. In fact, the lowest point of the square is

2.b-**36** Sketch of the Hopeton Earthworks in the 1840s, looking southwest; compare at Section 2.a, Fig. **40**, page 72. As with most early depictions of the Hopewell earthworks, the size of the walls and mounds (and of scale humans), relative to the overall dimensions of the geometric figures, was greatly exaggerated. (Engraving by Squier and Davis)

2.b-**37** Aerial Photo of Hopeton Earthworks (1938), showing the parallel walls at lower left, and traces of the two small circles outside the eastern (right) side of the square. (National Park Service)

yet five feet high. The circle is more worn, the western half averaging about two feet high." The greater accuracy of Thomas's survey clarified that the "square" is in fact an irregular polygon with no perfectly straight walls or right angles, and that the large circle is in fact distinctly oblong.



2.b-**38** Map of the Hopeton Earthworks in 1848. (Engraving by Squier and Davis)

Conservation & Protection

Between 1928 and 1932, the three mounds aligned in the eastern portion of the square enclosure were taken down and the soil used for fill in the railroad embankment adjacent to the site. Still in private hands and being actively farmed, the earthworks suffered from the widespread adoption of the diesel tractor after World War II, which was far more damaging than the horse-drawn plows of the previous century and a half. Both the National Park Service and the Ohio History Connection began planning for the acquisition of the Hopeton Earthworks in the late 1950s. Efforts accelerated quickly after a landowner, in 1961, subdivided the earthwork property for residential development and reduced one of the square enclosure walls with a bulldozer. A collaborative preservation effort led to the site's listing as a National Historic Landmark in 1964, although the earthworks remained in private hands and were still being farmed.

Housing developments and gravel mining in the area over the next two decades prompted protective action. In 1980, the U. S. Congress passed legislation to authorize the addition of the Hopeton Earthworks to the existing Mound City Group National Monument, though funds to purchase the land were not available for another ten years. During that time, the earthworks remained in private ownership and under cultivation. The gravel quarrying also continued along the western edge of Hopeton's river terrace; these operations, although stripping over 28 hectares of land that held some archaeological interest, did not impact the earthworks themselves.

Acquisition of Hopeton Earthworks by the National Park Service was completed in 1990, and the boundaries were expanded by land purchases after 1992. These later purchases included non-mound archaeological resources surrounding the earthworks, and provided a buffer against further encroachment. A boundary adjustment in 2016 added a 1.6-hectare adjacent parcel—a 900-meter-long corridor connecting the Hopeton Earthworks to the Scioto River and Mound City on the opposite bank. (It will permit future development of a trail connection between the two earthworks.)

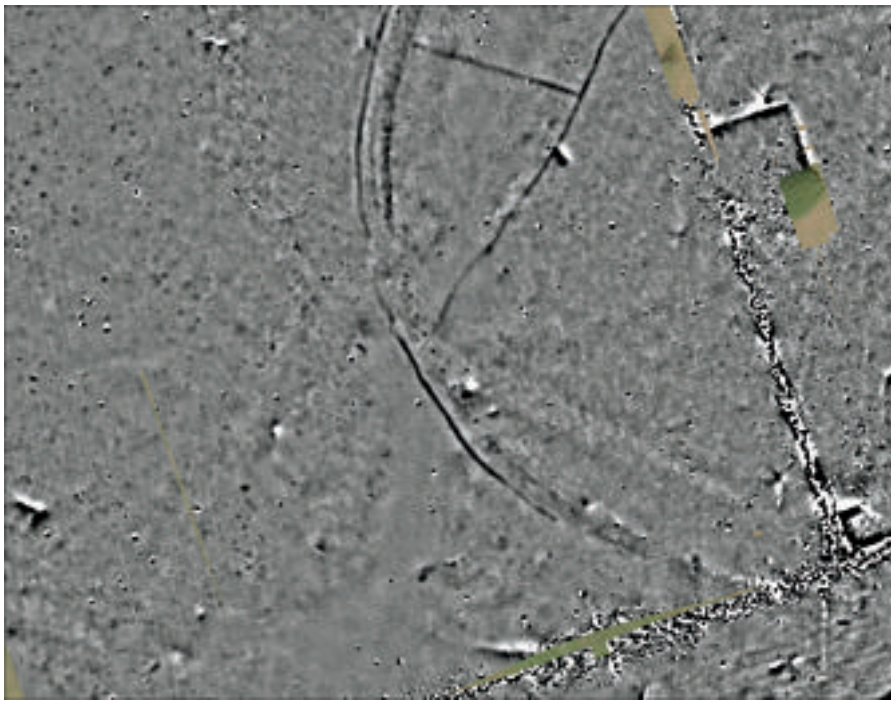
2.b-**39** Chief Glenna J. Wallace of the Eastern Shawnee Tribe of Oklahoma, with then Superintendent Dean Alexander and Park Archaeologist Bret Ruby, on the occasion of the dedication of the new visitor amenities at the Hopeton Earthworks. (Photo by Tom Engberg, National Park Service)

Recent Investigations, Site Access

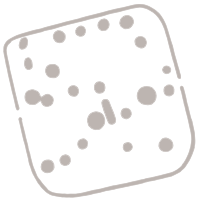
In the mid-1990s, the National Park Service's Midwest Archeological Center initiated a long-term study of the Hopeton Earthworks. Both geophysical surveys and strategic testing were used to determine the earthwork's function and construction. Magnetic surveys covered almost 28 hectares over five field seasons, between 2001 and 2005, in one of the first landscape-scale archaeo-geophysical surveys ever attempted. The inner and outer margins of the earthwork walls registered a clear and distinct magnetic signature even where the walls are plowed down and difficult to trace on the surface today. The small circles mapped by Squier and Davis outside the eastern wall of the square displayed little or no magnetic signature, but an electrical resistivity survey targeting the southernmost of these small enclosures demonstrated their integrity.

A parking area, path, and overlook facility were completed (in the Buffer Zone, Fig. **39**) in 2009. Areas of the site within the Boundary at Hopeton (also at High Bank, Hopewell, and Seip) are managed under turf grasses and hay, with native grasses and forbs planted in the Buffer Zones. To enhance visibility, grasses are allowed to grow tall on the earthwork walls at Hopeton and Seip. Vegetation management at all National Park Service units is designed to prevent soil erosion while enhancing visitor experience and native biodiversity, in accordance with a cultural landscape management plan completed in 2016 (See Section 5).

Investigations in 2015–2016 conducted jointly with the Deutsches Archäologisches Institut gathered more than 115 hectares of magnetometry data at Hopeton. This effort revealed the postholes of the large circle's colossal woodhenge (Fig. **40**).



2.b-**40** Magnetometry detail of the western arc of Hopeton's large circular embankment, showing its exterior ditch (the dark line) and the regularly-spaced postholes of a giant woodhenge along its interior edge (*Deutsches Archäologisches Institut*)



Construction Sequence & Methods

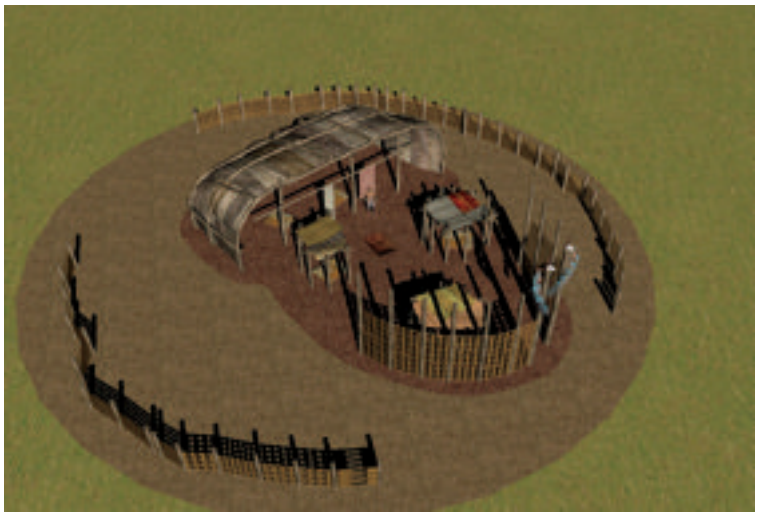
The construction of the mounds, pits, and enclosure wall at Mound City began about 1 CE. Detailed studies by Squier and Davis in the 1840s, by Mills and Shetrone in the 1920s, and by James Brown and others in the 1960s and 70s, have revealed much about the creation and use of the earthworks, and the authenticity of their present restorations.

Each of the 25 mounds covers the location and remains of a wooden ceremonial building. These structures varied in design, though in nearly all cases their plan shape was a rectangle with rounded corners (Fig. **41**). They varied in size from about 6.5 by 7 meters to 13 by 18 meters, or up to 231 square meters. The long sides of many of the structures had a distinctive double row of posts. Larger interior support posts were placed near the corners and center of most buildings. The doorways were centrally located in the shorter end-walls, sometimes with an exterior extension or portico. These were likely bent-pole structures, with curved roofs formed by bending the opposite wall posts together and lashing them under tension; the resulting form was then covered with sheets of bark (or possibly skins or thatch).

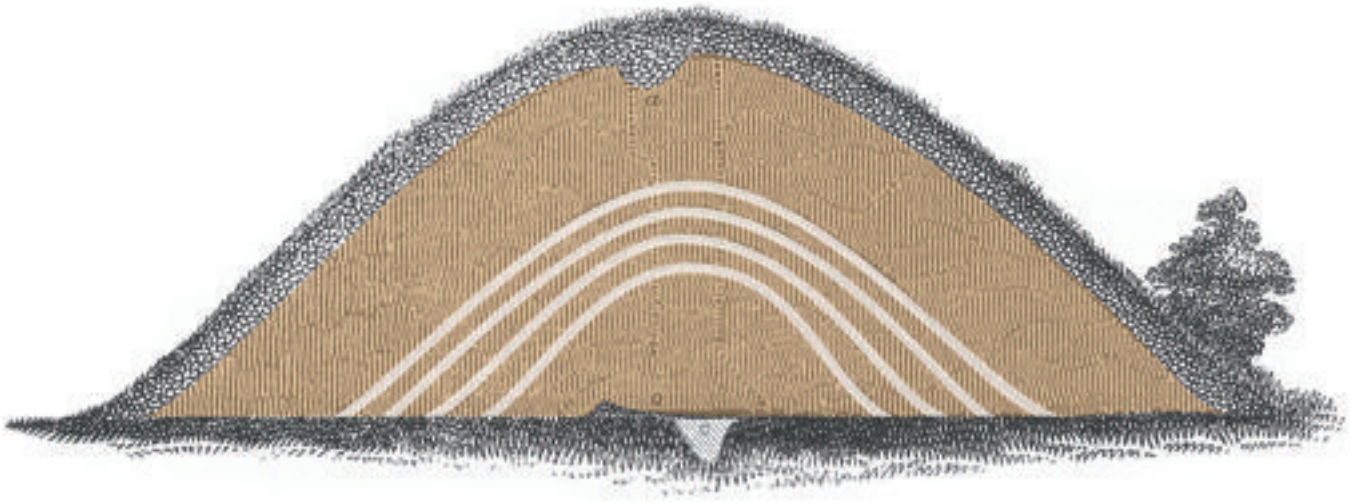
While Mound City was in use, visitors would have seen some functioning buildings—with their associated funerals, festivals, and feasts—and others under construction, along with mounds covering the ritual remains of still others. After the largest, centrally-located Mound 7 was completed, the doorways of all later buildings were oriented toward this new focal point. Mound City's ritual buildings had carefully prepared floors made of puddled clay topped with fine sand, which was periodically trampled and renewed, forming a cement-like layer. When this floor was uncovered, during William Mills' excavations, it resembled slabs of sandstone; this material, often called "Hopewell concrete," has been found at other sites in the region. In three cases (Mounds 7, 8, and 13), two successive structures were built at the same location: after the first was dismantled, a new floor was laid and a second structure built on top.

2.b-**41** Floor plan of the Mound 10 Substructure, showing the resemblance of the individual buildings with the shape of the enclosure itself. (After Brown)

2.b-**42** Reconstruction of the collection of tombs and burial structures under the Central Mound (Mound 7). (The Ancient Ohio Trail)



2.b-**43** Squier and Davis's cross-sectional drawing of Mound 7, the Central Mound, at Mound City, showing alternating thick layers of soil and thin layers of sand. (coloration added)



Within these mortuary buildings, damp clay was molded into basins, typically a square with rounded corners similar to the building itself (Compare Figs. **41** & **48**). These basins were in the range of 1.2 by 1.8 meters in size. Sometimes called "altars," they were almost always intensely burned during ceremonies that included the cremation of the dead and the ritual "killing" (by breaking or burning) of objects to be left with them. The ash and remains were then swept up and placed carefully on the building floor, in recessed pits, or on low earthen platforms. Human remains were often placed on bark, netting, or animal skins, along with ornaments and implements. A covering of logs or stones encompassed the corpse, which in turn received a covering of bark or poles, with a mound of earth topping the arrangement. While some burials were alone, others appeared in groups, usually in small numbers. In a final ceremony, each building was taken down or burned, and a mound was built over its remains and contents. Mounds were sometimes constructed in stages, with layers of loamy soil carefully separated by thin membranes of fine sand (Fig. **43**).

The large Mound 7 was especially elaborate. It began as an elliptical subterranean room 1.68 meters deep, 9.1 meters wide, and 12.2 meters long, accessed by means of a gently sloping ramp, and centered on a crematory basin. This "basement" room was later backfilled with soil. The new floor laid over it included a new crematory basin positioned exactly above the lower one, followed by an array of covered tombs and shelters (Fig. **42**).

Nine of the larger mounds were mantled with coarse gravel or river cobbles, usually to a thickness of 30 centimeters, but 50 centimeters in the case of Mound 7. Each of these large mounds was at least 1.6 meters tall and over 16.7 meters in diameter.

Mound City's enclosure wall was built in the customary method for Scioto and Paint valley earthworks, beginning with the removal of the topsoil layer. Prior to wall construction, earth was also moved or added to level the site, and the base layers of the wall were composed partially of midden material. Where the walls adjoin the adjacent constructed pits, care was taken to line the continuous surface with soil types that would resist erosion. The limited chronological evidence that exists so far for Mound City suggests that the enclosure wall was the last feature of the monument to be built.

Of the eight large pits flanking the enclosure wall, some were as deep as five meters in the mid 1800s. Because the topsoil is very shallow on these glacial river terraces, it is clear that these pits were intentionally designed vessels, not merely the result of mining soil for the mounds. They were deeply excavated into the glacial sand and gravel beneath, and then lined with clay in order to hold water (Fig. **46**). The placement of the pits around the enclosure wall resembles the positioning of eight large marine shells that were found surrounding one of the human burials beneath Mound 7.

2.b-**44** Several of the Mound City pipes now displayed in the British Museum (© The Trustees of the British Museum.)

2.b-**45** Water color painting of the puma pipe from the Davis collection, by artist James Plunkett, published with Davis' own descriptions in a catalogue called *Sketches of Monuments & Antiques Found in the Mounds, Tombs, & Ancient Cities of America.*

2.b-**46** Artist's photomontage of the southwestern pit at Mound City, as it would have appeared in wet seasons with its clay lining intact. Similar features at Newark and Fort Ancient also emphasize the intentional role of water in Hopewell earthwork design. (The Ancient Ohio Trail)

Early Settlement, Archaeology

Like the other earthworks, Mound City was re-claimed by forests between 400 CE and the arrival of the first Euro-American settlers at the end of the 1700s. The nearby town of Chillicothe began to develop as a major center, and in 1803 became the first capital of the state. As early as 1798, a 526-hectare land parcel containing Mound City was surveyed as a land grant for William Davies, in consideration of his service as a Colonel in the American Revolutionary War. Mound City was first described in 1808, in *Richardson's Chillicothe Fredonian*, as an "ancient fortification" surrounding "twelve or fifteen mounds, supposed to have been the repositories of the dead."

In the early 1830s, the Ohio-Erie Canal was built to connect Lake Erie to the Ohio River. The route followed the valley of the Scioto, and passed 400 meters west of Mound City. The completed canal encouraged rapid settlement of the area and accelerated the clearing of farms, yet Mound City remained forested for at least another 25 years. In 1832, George Shriver purchased the land, and the Shriver family held title to it until 1917.

The pioneering archaeologists Ephraim Squier and Edwin Davis mapped and partially excavated the still-pristine, forest-covered site between 1845 and 1847. Soon thereafter, the land was cleared and brought under cultivation, but their extensive and remarkable

discoveries here formed the basis for much of their classic work, *Ancient Monuments of the Mississippi Valley* of 1848. Beneath one of the mounds, they found the spectacular cache of smoking pipes. In others, they found cremated burials with pipes, mica symbols, various copper objects, obsidian knives, and freshwater pearls. Following the publication of these discoveries, Mound City stood as the best and most famous exemplar of "Moundbuilder" culture for more than fifty years, until the appearance of the finds from the Hopewell Mound Group in the 1890s.

During the American Civil War, from 1861 to 1865, the land at Mound City became "Camp Logan" and was used for the training of Union soldiers. After the war, the land reverted back to its use as Shriver's farm until 1917.

2.b-**47** Mound City while it was part of Camp Sherman, showing the preserved Mound 7. (Ohio History Connection)

Camp Sherman

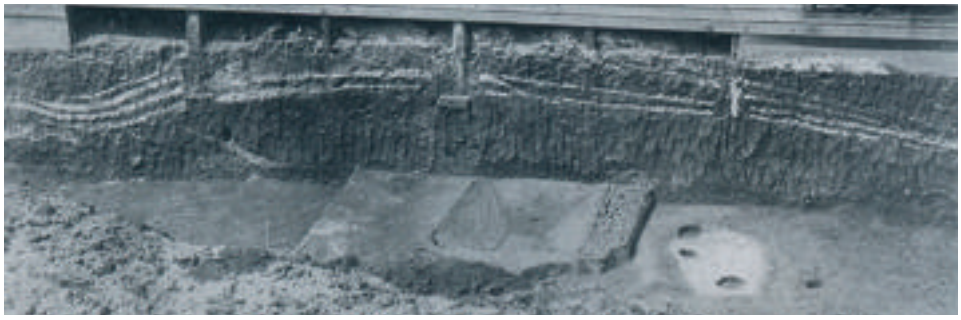
Through purchase and eminent domain, the United States War Department took control of over 800 hectares, including Mound City, in June of 1917, when the nation's entry into the First World War required the construction of a training site. Called Camp Sherman, it entailed the construction of nearly 2,000 buildings to accommodate 40,000 men. It was a small city unto itself, with barracks, a hospital, a railroad, its own prison, and sanitary and farming facilities (Fig. **47**). Roads and two-story wooden barracks were built on top of the site, but Henry Shetrone, William Mills, and Albert Spetnagel of the OSAHS met with Army officials to determine an approach that would allow construction of the barracks with minimal disturbance of the mounds. The construction and three-year occupation of Camp Sherman damaged many above-grade features, but much remained intact. The largest mound, Mound 7, was left untouched.

Mound City remained federally owned after the war, and was transferred to the Veterans Bureau in 1921, while preservationists at the local and state level mounted efforts to set aside Mound City as a national monument.

Preservation & Reconstruction

Working around the remaining buildings of Camp Sherman, the OSAHS undertook excavations at the site in June of 1920, and continuing into the late autumn of 1921. The work was directed by Mills, as Curator of Archaeology, with field assistance from Shetrone. The spectacular results demonstrated that the form and design of the mounds, and especially the archaeological record, had survived Camp Sherman largely intact (Fig. **48**). Mills called the 1920 season at Mound City one of the most successful of his career, and proclaimed Mound City the "best example of Hopewell culture in Ohio." Their excavations amassed more than 167,000 museum objects and archival items. These archeological efforts reignited public interest in Hopewell studies, and launched a drive to preserve the mounds and earthworks here and elsewhere.

These efforts succeeded on March 2, 1923, when the "Mound City Group National Monument" was created. With this designation, the land remained federally owned, but the War Department granted a revocable license to the OSAHS to "care for, preserve, protect, and maintain" the site.



2.b-**48** Excavation of Mound 18 at Mound City in the 1920s, showing the good state of archaeological preservation beneath Camp Sherman buildings—here specifically a clay basin or "altar" (center), and the distinct layers of soil and sand in the mound above. (Ohio History Connection)

The restoration of the mounds was begun immediately following the removal of the Camp Sherman buildings. Under Shetrone's direction, the OSAHS began the work in October of 1925, and continuing into 1926. The earthwork site was cleared of any remaining Camp Sherman debris, and then deep plowed to find traces of the leveled mounds and enclosure wall. Eleven of the mounds were restored to their known, 1840s dimensions. The enclosing wall was located without difficulty, and traces of all but three or four of the 23 mounds mapped by Squier and Davis were identified. Remnants of the gravel or cobble stone caps over Mounds 3 and 7 were clearly identified. By 1927, the principal features of the site had been restored using the best available evidence, now including the work of Mills and Shetrone, as well as Squier and Davis.

A State & National Park

Following these careful restorations, "Mound City State Park" opened to visitors in 1929. Like the Seip Earthworks, Mound City was transformed into a recreational park with picnic areas, shade trees, and open lawn on the mounds. Stairs climbed to a viewing platform atop Mound 7—called the "Death Mask Mound" at the time. A stone gateway and entrance drive were built, tying into the remaining Camp Sherman roads. (These were later removed.)

The Federal government transferred ownership of national monuments from the War Department to the National Park Service in 1933. During the following decade, while the site was still managed by the OSAHS, a number of structures were built, of which only two remain today—a maintenance building and a caretaker's residence (in the Buffer Zone). In 1946, the stewardship of Mound City was transferred to the National Park Service, which immediately began a long-term program to remove any elements that would detract from the visitor's experience and understanding of the mounds and earthworks. Trees were planted in areas surrounding the earthworks to screen adjacent land uses. In 1952, a boundary adjustment added a 4.2-hectare tract along State Route 104, providing greater scenic protection.

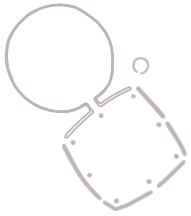
A new museum and visitor center was completed in 1960 (in the Buffer Zone) providing exhibits and office space. In 1963, the National Park Service and the Ohio History Connection partnered to construct an elaborate outdoor exhibit called the "Mica Grave." It featured a glass covered cutaway view of a reconstructed grave that Mills had discovered on the floor of Mound 13. (It was dismantled in 1996, out of respect for American Indian objections to the display of ancestral human remains.)

Recent Research, Visitor Amenities

In 1963, the National Park Service initiated a multi-year program of archaeological investigations intended to discover any still-intact archaeological resources, and to correct known inaccuracies in the 1920s restorations. The locations of the enclosure wall and gateways were re-confirmed, and corrected where necessary. The large, southeastern borrow pit was reconstructed. The exact locations of all 23 of the mounds that had been shown on the Squier and Davis map were verified; each mound excavation also revealed its corresponding building plan (posthole pattern) intact, along with substantial undisturbed evidence of its associated ritual and mortuary activities. Several small mounds were located which had disappeared during the decades of cultivation and Camp Sherman, as were two more that had been missing from the 1848 map to begin with; this brought the total number of mounds within the enclosing wall to 25.

A new outdoor exhibit was installed in 1976 featuring short wooden posts faithfully depicting the posthole pattern of the building plan revealed beneath the unrestored Mound 15. The same year, concrete steps and walkways, with metal railings, were added along the steep, wooded embankment of the Scioto River (Fig. **49**).

2.b-**49** The steep, wooded terrace edge between Mound City and the Scioto River.

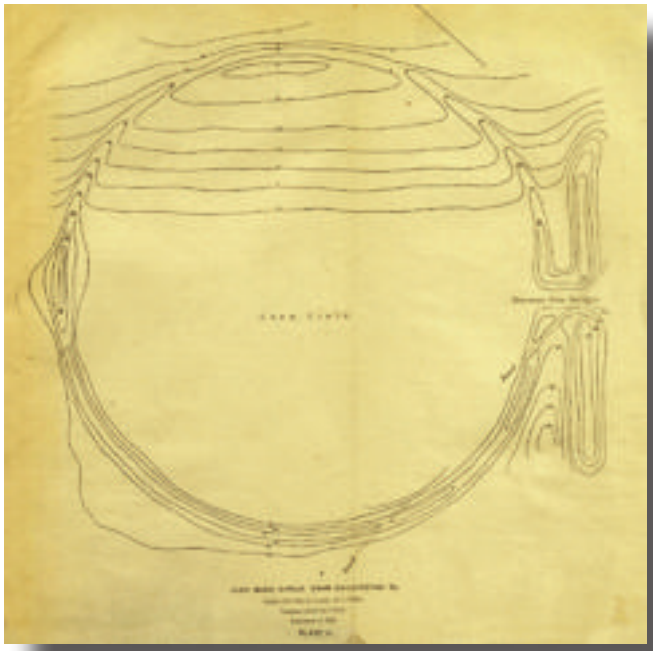


Construction Sequence & Methods

The High Bank Works were obviously designed and built in a way that is related to Newark's Octagon Earthworks, which they so closely resemble. Although research has not yet determined which came first, High Bank's construction process is better understood. Its walls were built over a surface that had been cleared of topsoil, as was the norm among Scioto and Paint Valley earthworks. In this case, the wall fill was comprised of various sandy clays and loams, with mixes of sand and gravel, at least some of it brought from the features west of the octagon labeled by Squier and Davis as "dug holes" (See Fig. 2.b-**11**, page 134). Excavations at the axial apex of the large circle have revealed that scattered wooden posts were erected there, and then removed, prior to wall construction. Similarly, excavations of the large circle's southern arc, just west of its connection with the octagon, revealed a fence of closely-set oak posts. It had been dismantled prior to wall construction; carbon dating indicates this occurred in the first or second century CE.

All of the walls were capped with a silty clay loam, although the construction beneath varied. The octagon walls used red and yellowish soils mixed together, while the large circle's construction used red soil below, with an overlay of yellow silty clay loess. The area where the wooden fence was discovered had been overlaid with thin layers of gravel in alternating colors. These complex variations indicate that deliberate practical or symbolic design intentions were behind the placement of specific sediment types. Squier

2.b-**50** LiDAR image of High Bank Works (2012) showing evidence of its topographic presence, the farm lane crossing the middle of the site, and the probably-lost segment of the circle at center left. (National Park Service)



2.b-**51** Holmes' 1891 contour map of the High Bank circle, showing the subtle definition of a possible "observatory mound" at the apex of the site's main axis, at left.

and Davis reported that, in the 1840s, the walls of High Bank's octagon that had "been least subjected to cultivation...(were) between eleven and twelve feet in height, by about fifty feet base." At 4 meters high by 15 meters wide, this would make them comparable to the walls of the square at nearby Hopeton.

During the intervening centuries (400–1800 CE), the subsidiary features trailing off to the southwest of the octagon, described by Squier and Davis in their day as "reduced but traceable," had been apparently truncated by bank erosion from a changing course of the Scioto River below.

Early Settlement & Archaeology

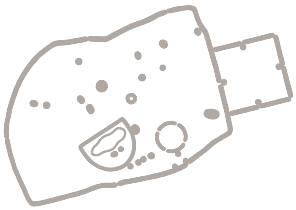
The Squier and Davis map, made in 1846, shows the complex at High Bank cleared of forests, with a farm building west of the earthworks near the terrace edge, and what were then recent property boundaries. Forty years later, Cyrus Thomas noted that the site had "been cultivated almost annually since 1845. The walls of the circle and octagon are still quite prominent, and are respectively two and five feet high." Also around 1890, a contour survey of the large circle (Fig. **51**) showed a slightly wider and taller profile at the location where an "observatory mound" (comparable to Newark's) could have been, although no other records from the site have noted this feature.

The Chesapeake and Ohio Railroad embankment just east of the earthwork (in the Buffer Zone) was built before 1857, to a height of about six meters. The farm lane crossing the site, and the farmstead at its extreme western edge (in the Buffer Zone), were built prior to 1891.

Preservation & Recent Research

In 1973, the site was listed in the National Register of Historic Places. The legislation passed by the U. S. Congress in 1992 establishing Hopewell Culture National Historical Park also authorized the acquisition of three additional earthwork sites (besides Mound City) including the High Bank Works. It was at this time that the earthworks were taken out of cultivation. Field investigations from the 1970s to 2011 have demonstrated that plowing has caused only superficial disturbance. Since 2012, LiDAR and magnetometry surveys have revealed the topographic remains of the walls (Fig. **50**), and clearly delineated the inner and outer margins of the original earthworks, indicating that the original base layers of the walls remain intact (See Fig. 2a-**56**, page 85). Magnetic traces of two huge post enclosures near the center of the large circle have yet to be field verified.

The High Bank Works are currently reserved for research, and public access is limited. In 2012, a native grassland was established at the site, as described above for Hopeton Earthworks. In the same year, the National Park Service commissioned high-resolution LiDAR imagery for High Bank, as well as the other nominated earthworks under its purview.

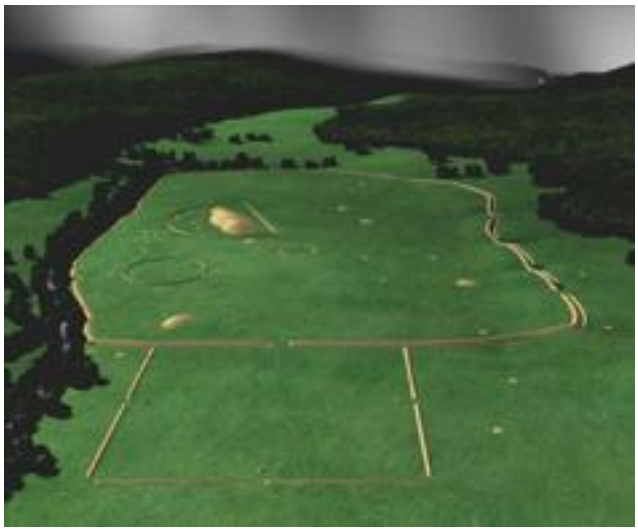


Construction Sequence & Methods

More than any other earthwork in this nominated series, the Hopewell Mound Group was built up and added to over many years, and very possibly many generations. This high, level, gravel-outwash terrace in the valley of the North Fork of Paint Creek, a tributary of the Scioto River, was embellished with a succession of increasingly elaborate ceremonial activities, deposits, and buildings, between about 100 BCE and 400 CE, the end of the Hopewell era (Fig. **52**).

Archaeological excavations across the eastern embankment wall of the Great Enclosure (Fig. **53**) have provided clear evidence for how the earthen walls and ditches were constructed. For the walls, the builders carefully selected distinct soils and used them in at least two major construction episodes. As at the Hopeton Earthworks, the upper layer of topsoil was stripped away in preparation. The builders then used carefully selected soil types, first yellow-brown and then red-brown, to lay down distinct strata while taking care to keep the different colors from mixing (Fig. **54**). These soils were not quarried from the adjacent ditch but were brought instead from other locations.

Sediments drawn into the ditches by modern agricultural activities have effectively sealed and protected the evidence of how they were created. The builders dug into the loose and unconsolidated sand and gravel subsoil, and then lined and stabilized the ditch with a clay loam quarried from elsewhere and brought to this location. As at other earthworks, this clay lining served not only to stabilize the sloping surface but also to hold water. The best preserved portions of the ditch at Hopewell, along the northern wall of the enclosure, still retain water throughout the winter and well into summer. Near the northwestern corner of the Great Enclosure, Squier and Davis reported evidence that the builders had also re-directed a nearby spring in order to increase the flow of water in the pre-existing channel outside the western wall. This apparent desire to complete a watery boundary is consistent with findings at Fort Ancient, and Newark's Great Circle.

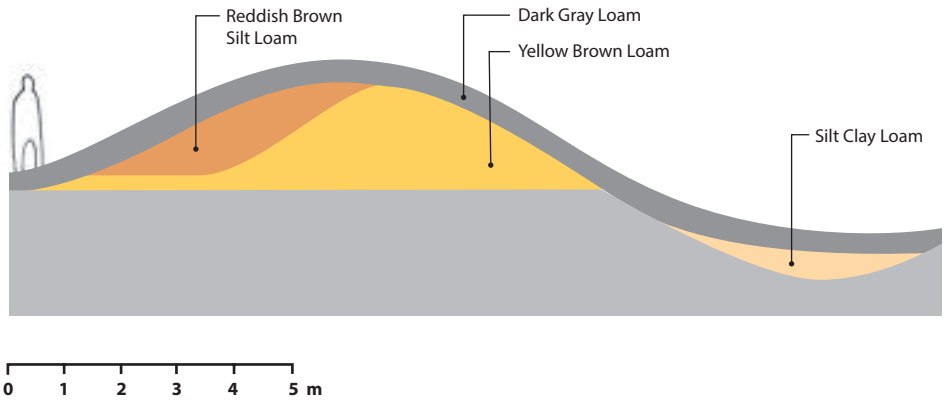


2.b-**52** Computer rendering of Hopewell Mound Group in its forest clearing, with the North Fork of Paint Creek at far left. (The Ancient Ohio Trail)

2.b-**53** Archaeologists examine the ancient ditch surrounding the Great Enclosure at Hopewell Mound Group during excavations in 2006. (Photo by Mark J. Lynott, National Park Service)

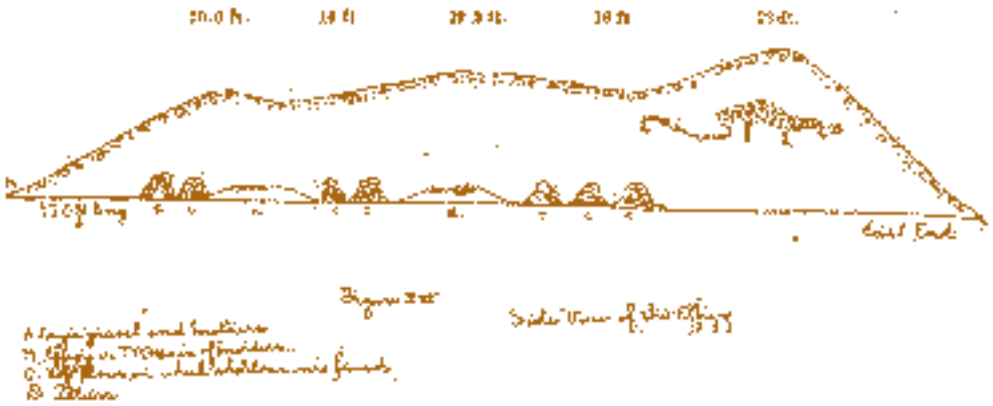
2.b-**54** Section diagram through the eastern embankment wall and ditch at the Hopewell Mound Group, showing soil types, as excavated in 2006.

Hopewell Mound Group:
Wall Section



Mound 25, The Great Mound

The Hopewell Mound Group, because it was built over many years or even generations, has one of the largest burial populations of any site from the period. Mound 25, or the Great Mound, was the largest Hopewell mound ever constructed. It reveals the most elaborate planning and development process of any Hopewell project, and was embellished with the greatest artistry and ceremony. In the open, level center of the site, the builders removed the topsoil to reach a clay layer. They mixed clay and water to create a very hard floor surface ("Hopewell concrete" again), and decorated it with colored and fire-altered sediments.



2.b-**55** Warren King Moorehead's field sketch of Mound 25, the Great Mound, showing the rock mosaic of the panther on its surface, at upper right. (Ohio History Connection)

The precise sequence is unknown, but over several generations, people performed ceremonial rituals here. They dug pits and built fires; they covered certain areas with stones, or multi-colored clay. Buildings of various sizes were erected here to shelter or enclose the ceremonies; open plaza-like areas hosted other performances. Many activities were focused around prepared clay basins, and human burials were placed on and under the floors of several possibly-connected wood-framed buildings, sometimes individually mounded. These great timber halls were eventually dismantled and covered by larger mounds, and eventually the final, gigantic, three-lobed form. The southern face of the final mound was decorated with an unusual boulder mosaic depicting a long-tailed panther (Fig. **55**).

The graves in Mound 25 contained the remains of at least 102 people, many of them arrayed with a dazzling variety of copper (Figs. **57** & **58**), obsidian, mica, and other exotic materials fashioned into beautiful shapes, both abstract and figurative. Some of the burials were first burned in another location, then the remaining ash and bone swept together and re-deposited here. But most were buried unburned, stretched out in log tombs. About eighty of the graves under the Great Mound were in three clusters, each thought to represent members drawn from one of three local communities who chose to cement and symbolize a tripartite alliance by burying their dead together.

The surviving objects that were found within each of these groups were distributed widely, and in highly variable bundles, suggesting a wide range of leadership roles. There was little evidence for ranking or social stratification within this burial population. Despite

2.b-**56** Detail of recent magnetometry data showing the intact, original outline of Mound 25 (lower left), once known as "The Effigy," plausibly including four giant paws and a curling panther tail extending outside the D-shaped enclosure; the large and small circles (at right, and top center); and at least three other mounds (upper left). (Deutsches Archäologisches Institut and National Park Service)

distinctions between persons who were accorded burial inside an earthwork versus those who were not, or among burial facilities or accompaniments in different mounds, the Hopewell mortuary record indicates a much more broadly egalitarian social structure—contrasting sharply with the centralized, institutionalized, hereditary leadership found in later Mississippian chiefdoms.

Also on the floor of Mound 25, two "Great Deposits" of objects were laid down, many of them having been ritually broken and burned. Even after two thousand years underground, their beauty and astonishing variety are still evident today. Dualistic contrasts are a theme here: all the black obsidian, for example, was in the eastern deposit while all the white pearls were in the western one.

2.b-**57** Ceremonial deposit in Mound 25 including many copper pieces. The copper celt at lower left is 55 centimeters long, and weighs 17 kilograms; Moorehead claimed it was "the largest worked (finished) copper object made by prehistoric man in the world." (Ohio History Conenction)

2.b-**58** Artist's conception of the copper artifacts from Mound 25. (The Ancient Ohio Trail)

Other Mounds & Circles

Beneath Mound 2, also called the Flint Mound, more than 8,000 flint discs were arranged in little bundles and laid down artfully over a bed of fine gravel (Fig. **59**). They filled the central floor of a timber building, which was later dismantled while leaving the flints to be buried. The contents of this massive cache (Fig. **60**) had been brought from several different sources in Tennessee, Illinois, and Indiana—some as far as 700 kilometers away. Two other deposits, left under a small mound near the northern edge of the Great Enclosure, were, like the Great Deposits, deliberately arranged in a contrasting duality: all the silvery mica was in one, on a square tablet; while all the shiny copper was in the other, on a round disc.

The astonishing variety of mounds and deposits at the Hopewell Mound Group also included mounds dedicated to mica slabs, and to obsidian pieces. All told, the ceremonial deposits placed at this site have no equal among those found at any other location in the Hopewell world; their spectacular quantity, material variety, and impressive artistry was prodigious.

A total of at least 21 other mounds were built within the Great Enclosure, the largest being Mound 23, an oval form 46 meters long and nearly four meters high (Fig. **63**). All of the mounds at Hopewell Mound Group that were originally over 2 meters tall retain the remnants of a mantle (showing as a "halo" on magnetometry images) of stream cobbles and gravel, similar to Mound 7 at Mound City.

Besides enclosed ceremonial structures such as those whose remains have been found under Mounds 2 and 25, other timber architecture was erected within the Great Enclosure. The large, earthen circle was associated with a giant woodhenge, its northwestern gateway aligned to the solstice sunset. A foursquare of giant earth ovens positioned around the geometric center of the circle would have been capable of provisioning large groups of people gathered for the midsummer feasts.

2.b-**59** Computer reconstruction of the interior of the flint cache building, which preceded the construction of Mound 2, showing the flint discs stacked neatly in the center. (The Ancient Ohio Trail)

2.b-**60** The more than 8,000 flint discs from Mound 2, immediately after their excavation. (Ohio History Connection)

2.b-**61** Drummers accompany visitors from the Eastern Shawnee Tribe of Oklahoma, at Newark's Great Circle in 2013. (Newark Earthworks Center, photo by Timothy E. Black)

Early Settlement & Archaeology

The Hopewell Mound Group stood on lands platted within the Virginia Military District and given to one Nathaniel Massie in 1796 in recognition of his service in the American Revolutionary War. This tract was later subdivided and changed hands several times throughout the 1800s. The earthworks were first described and mapped in print by Caleb Atwater in 1820, albeit somewhat inaccurately.

The map published by Squier and Davis in their *Ancient Monuments of the Mississippi Valley* of 1848 is more accurate (Fig. **62**), and shows the land almost entirely cleared of forest, and with two farmsteads on the property. William C. Clark had built a house just south of Mound 25 in 1840, and a second farmstead (later known as the John S. Steel farm) is shown just southeast of the square enclosure. All the lands on the primary, second terrace are shown as cleared and divided into agricultural fields. The portions of the Great Enclosure on the slopes of the moraine to the north are shown as still forested. A road linking the nearby towns of Chillicothe and Frankfort (and still in use today) is shown crossing the southern portion of the Great Enclosure.

Squier and Davis also conducted the first excavations at the site. They opened at least four mounds and identified several characteristics that shaped their conception of "mound-builder culture:" prepared clay altars apparently devoted to sacrificial rites; sculptures,

implements, and ornaments evidencing great refinement in the arts and crafts; and exotic raw materials including copper, mica, marine shell, and obsidian reflecting the builders' far-flung connections across North America.

In 1851, the first railway to reach Chillicothe was the Marietta and Cincinnati (M&C) line, the first overland route between those bustling Ohio River ports. The tracks were laid just 50 meters north of the Clark residence, adjacent to the road and thus cutting through the Great Enclosure's walls at each end. A busy passenger and freight station, "Anderson Station," operated one and a half kilometers to the east. (The Baltimore and Ohio Railroad took control of the M&C in 1868, and it became known as the B&O Southwestern.)

2.b-**62** Squier and Davis's 1840s map of the "North Fork Works," later to be named the Hopewell Mound Group and to become the type-site for the culture.

2.b-**63** Mound 23 as it appeared in 1891, before Moorehead began his excavations. (Ohio History Connection)

In 1878, the Cincinnati, Hamilton and Dayton Railroad (CH&D Wellston Division) constructed a rail line in the flood plain, immediately at the bottom of the scarp (in the Buffer Zone), just below the south wall of the Great Enclosure (Fig. **64**). This line was abandoned in 1933. Erosion, or the construction of the CH&D rail line, may have undermined portions of the south wall; its overall condition is not well known. A slight rise, and a concentration of cobble-sized stones, have been detected along at least part of the terrace edge, but trees and shrubs have precluded magnetometry surveys in this area.

Mordecai Cloud Hopewell, proprietor of Clough & Hopewell Dry Goods in downtown Chillicothe, purchased two farms encompassing the mounds and earthworks in 1889. As the landowner during Warren King Moorehead's excavations of 1891 and 1892, it was his name that became attached to the site, and then to the culture. Those excavations were motivated by the upcoming World's Columbian Exposition to be held in Chicago in 1893, to mark the 400th anniversary of Columbus' arrival in North America. Harvard University professor Frederic Ward Putnam was chief of the exposition's Department of Anthropology, and assigned Moorehead the task of collecting archaeological materials that could showcase the richness of pre-Columbian Native American cultures.

With Squier and Davis's earlier volume as his guide, he excavated at least 17 of the mounds, including about a quarter of the large mass of Mound 25—"The Effigy" as it was called at the time (Fig. **65**). Moorehead's spectacular discoveries there established the defining characteristics of the Hopewell culture: monumental and precise earthen architecture, and a bewildering abundance and variety of symbolically charged objects crafted with the highest level of skill and artistry out of raw materials brought from distant parts of the continent. Moorehead was able to interpret much about the cultural and ceremonial life of the people from the burials and other contexts in which the artifacts were found. Visitors to the Columbian Exposition were enthralled by the abundance and exquisite

2.b-**64** Aerial photo (1976) of the Hopewell Mound Group, showing much of the Great Enclosure plus the square to the east. The two rail lines are visible crossing the lower quarter of the image: the straight M&C immediately adjacent to the road, and the slightly curving CH&D on the flood plain below. (National Park Service)

craftsmanship of the artifacts from the Hopewell Mound Group, and the concept of the "Hopewell Culture" was born. After the exposition, many of the objects from the site were stored or displayed in Chicago's newly created Field Museum of Natural History.

From 1922 to 1925, Henry C. Shetrone worked at the site under the auspices of the Ohio State Archaeological and Historical Society. Aiming at a more thorough and systematic investigation, he excavated all the extant mounds and re-excavated those incompletely explored by Moorehead. Shetrone's field methods and record-keeping were superior to his predecessor's; he produced more accurate and detailed floor plans of several sub-mound structures, and was able to precisely locate all of the mounds and earthworks. His work remained the authority on the Hopewell Mound Group until the advent of new remote sensing surveys after the turn of the current century.

In the 1950s, three steel towers supporting high voltage electrical transmission lines were erected within the Boundary, on footings.

2.b-**65** Engraving by Squier and Davis of Mound 25, in its D-shaped enclosure, as it appeared on W. C. Clark's farm in the 1840s, 50 years before its partial excavation by Moorehead.

2.b-**66** The central, open area of the Great Enclosure, showing the recreational trail (far left) and road; the distant, subtle profile of the unreconstructed Mound 25 is visible at center, the wooded moraine at right.

Recent Investigations, Site Access

The Hopewell Mound Group remained in private hands, and mostly under cultivation, until October of 1980, when the Archaeological Conservancy purchased 65.09 hectares including most of the mounds and earthworks. No professional archaeology had been conducted at the site during the fifty years following Shetrone's work. During this period of relative neglect, the northern wall was the least impacted part of the earthworks—its western third remained forested, having never been cleared for agriculture, while the eastern two-thirds was used only for pasturage and rarely if ever plowed. As a result, these remain the most visible portions of the earthwork today. In 1974, the Hopewell Mound Group was listed in the National Register of Historic Places.

The additional earthwork site purchases authorized by the 1992 Hopewell Culture National Historical Park legislation included the Hopewell Mound Group. The National Park Service purchased the Conservancy's holdings in 1997; this was expanded between 2000 and 2016 with an additional 61.94 hectares, leaving only two small parcels totaling 1.12 hectares still privately owned within the Park's authorized boundary. In 1999, a portion of the public multi-use Adena Recreational Trail was extended through the site (Fig. **66**). It is a paved bicycle path re-purposing the old M&C rail line, directly adjacent and parallel to the county road.

During 2001 and 2002, a team of archaeologists from the National Park Service and Ohio State University became the first to use magnetometry and resistivity to investigate the earthwork complex and its archeological features. Sampling across wide areas of the enclosure, they found no evidence of long term settlement within the earthen walls, but instead traces of ceremonial use and short-term, small-scale, specialized occupations. In the process, they unexpectedly discovered the smaller ring and ditch situated between Mounds 2 and 23 that had not been noticed in any earlier surveys. This surprising result was an early indication of the high level of archaeological integrity still present at the site.

In 2008, visitor facilities including a small parking lot, restroom, picnic shelter, and pedestrian trail with interpretive signs were installed just east of the square enclosure (in the Buffer Zone).

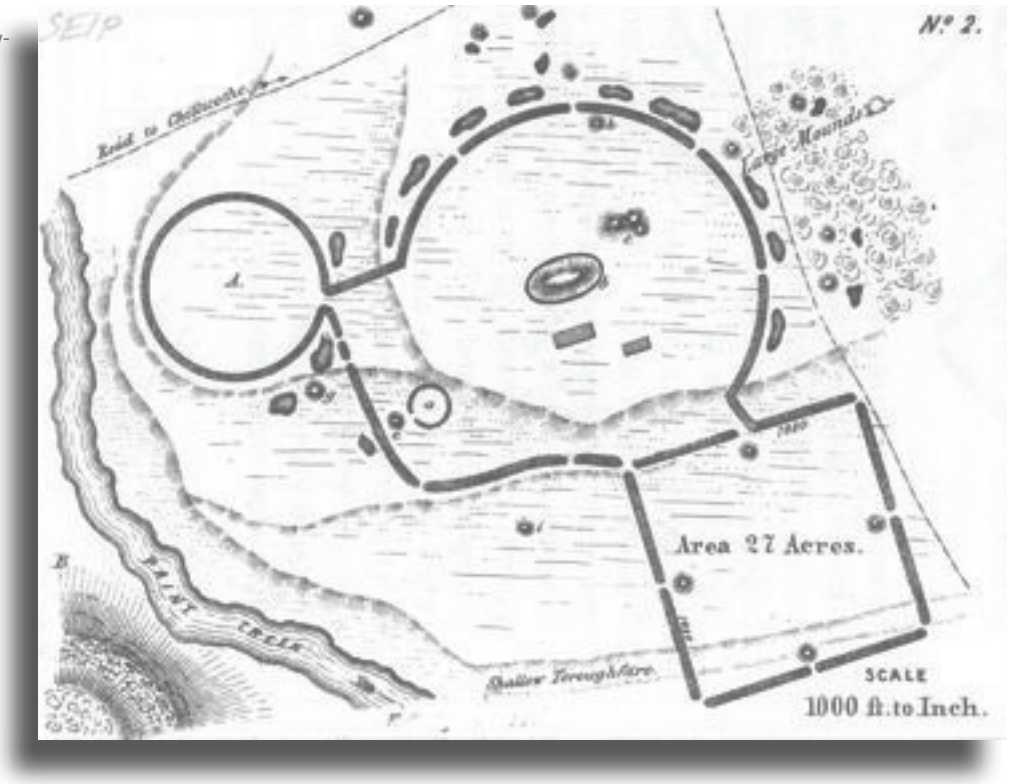
Larger, higher-resolution magnetometry surveys were conducted, first in 2012–2013 and again in 2015. The first of these revealed a bewildering array of intact subsurface archaeological features, and the second (in partnership with the Deutsches Archäologisches Institut, Bournemouth University, SENSYS GmbH, and Ohio Valley Archaeology, Inc.) became the largest archaeological magnetic data set ever compiled in North America. It covered the entire area within and immediately surrounding the Great Enclosure and the Square Enclosure, detecting all of the previously mapped features in richer detail, and revealing a host of previously unknown features (See Fig. 2.a-**66**, page 93). These magnetic surveys of increasing resolution continue to demonstrate that the site's subsurface features are well-preserved.

Construction Sequence & Methods

Like all the geometric earthworks, the Seip Earthworks were built on a large, generally-level (though in this case less so), gravelly outwash terrace (Fig. **67**). Like the Hopewell Mound Group, this complex was built up over many years, and had a large burial population. An extended community used this site over several generations as a civic and ceremonial center.

In designing the earthwork enclosure at Seip, the builders used dimensions and principles shared by four similar sites within a 30-kilometer distance. These matching "tripartite" earthworks show the ancient architects with an advanced knowledge of precise, well-refined techniques of design, measurement, and execution. Because of their precise correspondences, the five "tripartite" earthworks, including Seip, may be the last of the Hopewell-era geometric enclosures.

The building process for the enclosure walls followed the nearly universal pattern at other Scioto and Paint Valley sites, whereby a large area of topsoil was stripped to create a cleared, level surface, before a combination of soils with different colors were brought in and used to form the wall. In this case, the subsoil was removed to a width of over 15 meters before a low, wide layer of yellowish soil was laid down. Then, the more visible profile of the wall was created by topping this yellow layer with a narrow ridge of darker, reddish-brown soil. Both soil types were sourced from a series of borrow pits outside the large circular enclosure.



2.b-**67** Seip Earthworks as drawn by Squier and Davis in 1848, showing the layered terrace levels on which the earthworks were built.

The large, central mound (called "Seip-Pricer" after two landowners) was preceded by a huge, multi-chambered timber building, with a precisely-gridded, three-part floor plan (Fig. **68**) almost identical to another discovered at the nearby Liberty Earthworks (another of the tripartites) south of Chillicothe. The floor of the mound was prepared by stripping away the topsoil to a depth from 15 to 30 centimeters, exposing a coarse clay and gravel surface. An equivalent thickness of dark clay was then laid down in the shape of the final mound, followed by a thin layer of sand. This floor was used for crematory basins, burial platforms, and artifact deposits. The timber-framed building (Fig. **69**) consisted of three symmetrical chambers organized along a central axis, the two larger ones based on a structural grid very nearly consistent at 2 meters on-center. The overall size of this structure was 47 by 22 meters, and contained the remains of at least 125 people.

2.b-**68** Floor plan of the Liberty-Harness Big House, showing its symmetrical, gridded structure similar to Seip's. (After Greber)

2.b-**69** Reconstructed interior view of the Seip-Pricer Big House, the type of building named M'sikamekwi by the latter day Shawnee. (The Ancient Ohio Trail)

Laid down inside this large, elaborate structure were many log tombs, more than 100 cremation and inhumation burials, prepared clay basins or altars, and elaborate ceremonial deposits. These artifacts constitute one of the most spectacular collections of Hopewell material remains ever encountered (along with those from Hopewell Mound Group and Mound City). Among them was the famous clay Seip Head, copper breast plates, objects of silver, galena, and meteoric iron, flint and obsidian implements, and organic remains including alligator and shark teeth, tortoise-shell artifacts, shell and pearl beads, intact samples of Hopewell cloth woven of milkweed fibers; and much more.

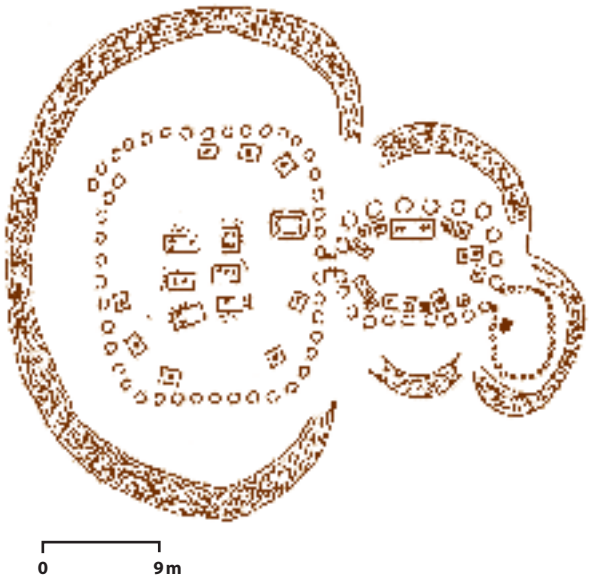
The development of this building or "Big House," its tombs, and the subsequent mounding process was complex. Most people buried on its floor were cremated first. Among the few to be laid out unburned were four young adults and two small children, placed together in a large common tomb at the building's western end, and surrounded by thousands of freshwater pearls. This elaborate burial may have been the last and most important in the structure, for the tomb's location was marked twice after the building was dismantled and mounding began. On three feet of clay, five oversized pipes (brought from far away, likely the Tennessee Valley) were laid down. Many feet higher, on the primary stage of mounding, a

woven and printed fabric canopy was pegged down over the tomb's location with more than 100 deer-bone skewers. The final mound was formed with a thick mantle of earth that more than doubled its height, ringed by a 3.5-meter thick stone slab retaining wall, and capped by a 15- to 60-centimeter mantle of small stones.

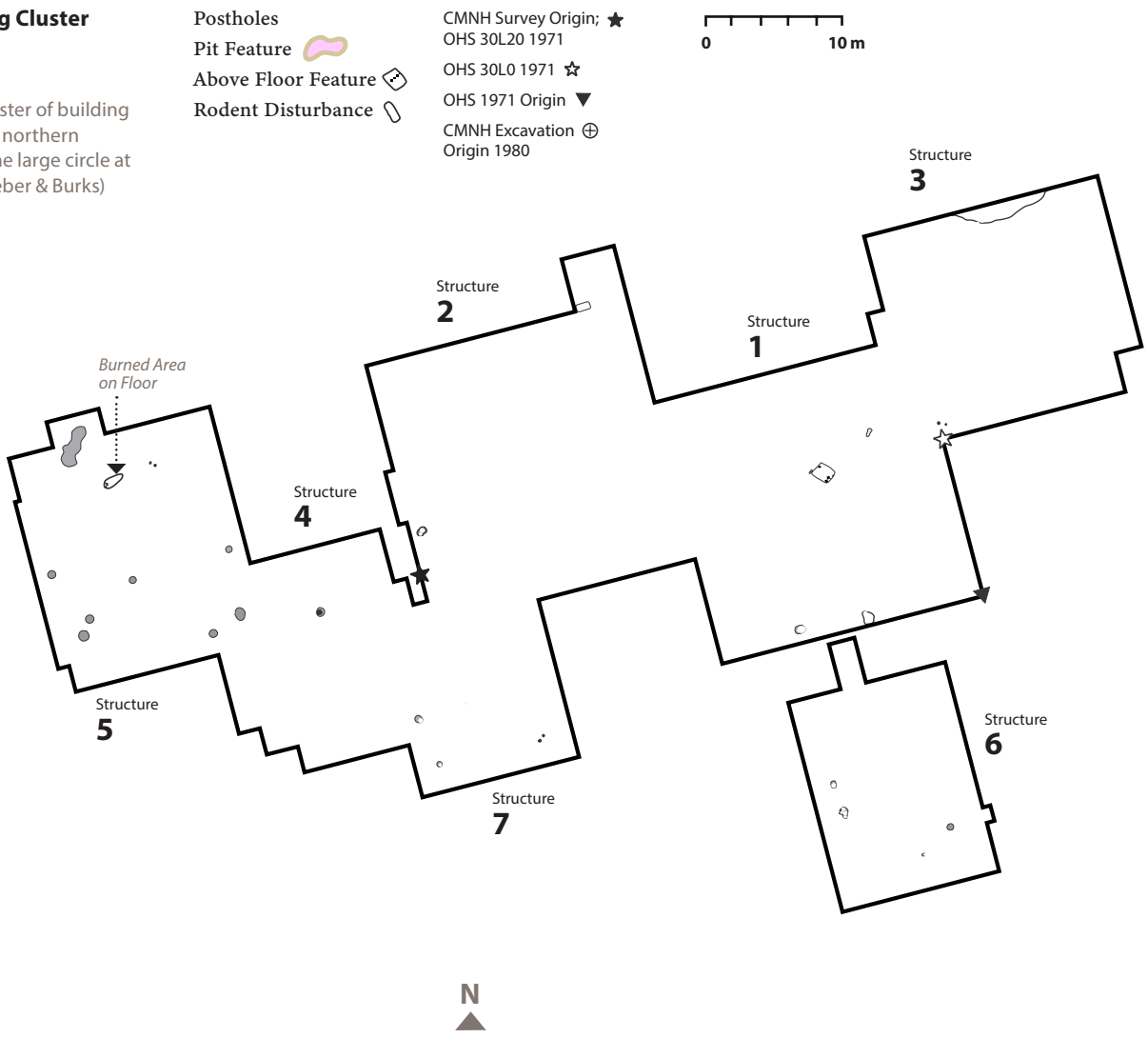
The nearby Seip Conjoined Mound (also called "Seip Mound 2") was built to cover the burned remains of three ceremonial buildings, one beneath each of its three lobes (Figs. **70** & **71**). The topsoil was removed to create a prepared floor, surrounded at its perimeter by a band of gravel. On the floors inside the three connected buildings were several log tombs, 43 cremated human burials, plus artifacts including copper breast plates, copper earspools, copper axes, cut and drilled bear canines, shell, bone, and freshwater pearl ornaments and implements, marine shell and decorated pottery vessels, chipped flint implements, mica cutouts, and intact samples of Hopewell cloth. Following the burning of the buildings, the three lobes of the mound were built up out of loamy soil to heights of 1.8, 3.6, and 6 meters. The largest was capped with limestone slabs interspersed with gravel, and along its northern slope a stone staircase climbed to the summit.

2.b-**70** Plan of the three connected buildings beneath the Seip Conjoined Mound, also showing the enclosing gravel band defining the mound's perimeter. (After Mills)

2.b-**71** The Seip Conjoined Mound before the 1906 excavations began. (Ohio History Connection)



To the north of the Seip-Pricer Mound, halfway to the enclosure wall, an intensive activity area included several large buildings (Fig. **72**). The smallest covered more than 55 square meters, and the largest more than 130 square meters. The builders left few clues to indicate what they did in these structures, although eventually they dismantled them and carefully covered each one with a low mound or mantle of soil and gravel. Some time later, between 200 and 500 CE, several large timber post circles were also built and dismantled here, and the empty post pits were carefully filled with cobbles.



2.b-**72** The cluster of building plans from the northern perimeter of the large circle at Seip. (After Greber & Burks)

Early Settlement & Archaeology

Like the Hopewell Mound Group, the Seip Earthworks lie within the Virginia Military District and stood on a 405-hectare tract deeded to Simon Morgan in 1793. The earthworks were first described and mapped by Caleb Atwater in 1820, who also noted the exact geometric equivalencies between the squares at Seip and at nearby Baum, and observed that the Seip-Pricer mound appeared to be "composed mostly of stones." He noted that another nearby mound was "composed entirely of a red ocher, which answers very well as a paint. An abundance of this ocher is found on a hill not a great distance from this place; and from this circumstance, the name of the fine stream in the vicinity, in all probability, is derived. It is called 'Paint Creek.' "

Squier and Davis recorded the earthworks here in the 1840s, indicating the 'Road to Chillicothe' passing by to the north (now U. S. Highway 50), Paint Creek to the south, and two (now vanished) structures standing south of the large mound. A track is shown extending southward along the eastern flank of the earthwork, more or less corresponding to today's Dill Road. Their notes describe the complex as being situated on the estate of John Woodbridge, Esq., of Chillicothe, and that agricultural plowing had already reduced some earthwork features to the degree that they were difficult to trace. Their account also suggests that the square, situated on a slightly lower terrace than the circles, had apparently been "invaded by the water" during the centuries since its construction—rare incidents of extreme flooding caused by slippage on the steep cliffs across the river from the site.

Thomas and Hannah Blackstone purchased a narrow, 40.5-hectare parcel in 1852, stretching from what is now Highway 50 south to Paint Creek. The western boundary of the parcel cut through the Seip-Pricer Mound (hence the hyphenated name, after two later landowners), and the eastern boundary followed what is now Dill Road. This parcel contained the eastern half of the earthwork complex, as well as the Seip Conjoined Mound. By 1857, they had built the small brick house, still standing today with its façade directly atop the north wall of the large circle (See Fig. 2.a-**83**, page 106), and the two small outbuildings behind it.

The surrounding land, including the earthworks, were used for prosperous farming operations devoted to dairy, grain, beef, pork, and wool production. A county history published in 1871 makes brief mention of the "ancient works" on Thomas Blackstone's farm, noting that one mound was covered in 18 inches (46 centimeters) of gravel and contained at least one skeleton, found in a sitting posture and surrounded by stones.

The Blackstone's house and land were sold in 1883 to the Seip family, and successive Seip heirs operated the farm as a rental property for more than 100 years, until 1990. The neighboring parcel to the west, and extending to the banks of Paint Creek, was owned by the Pricer family, who built a house and barn (which are no longer standing) near the small circle.

From 1906 to 1909, William Mills of the OSAHS excavated the three-lobed Seip Conjoined Mound, revealing the ancient charred remains of its large three-roomed structure, and its many tombs and artifacts. Today, the excavated soil has been redistributed, though not as a restoration of the form of the mound prior to its excavation.

Over four field seasons from 1925 to 1928, Henry Shetrone and Emerson Greenman, also on behalf of the OSAHS, excavated at the Seip-Pricer Mound (Fig. **73**), revealing additional posthole patterns, fire pits, and burials across the full layout of its large sub-mound building. They also found Seip's most iconic artifacts—the clay head, copper pieces, and woven cloth. The Seip-Pricer Mound was reconstructed in 1927 to the dimensions measured by Squier and Davis in the 1840s.

2.b-**73** The Seip-Pricer Mound during the excavations of the early 1920s. (Ohio History Connection)

2.b-**74** Excavation trench at the base of the Seip-Pricer Mound, showing the rim of large stones surrounding its base. (Ohio History Connection)

Recent Investigations, Site Access

Shetrone and Greenman's excavations and spectacular finds in the 1920s highlighted the importance of the site and led to successful preservation of the remains of the Seip Earthworks as a public park. Seip Mound State Memorial was established in 1927 with the acquisition of a 4-hectare parcel stretching from the highway to Seip-Pricer Mound, plus an additional 0.13-hectare donation from the Seip family.

The OSAHS installed the site's first amenities for visitors in the 1930s (Fig. **75**), though all of the changes from that period have since been removed. During the same decade, the Ohio Department of Highways developed the edge of the property immediately adjacent to US 50 as a roadside rest area, with parking and other amenities, of which only a rustic picnic shelter remains today. Meanwhile, archaeological work continued. Raymond Baby and Martha Otto conducted one of the first non-mound investigations at any Hopewell earthwork, in the 1960s and 1970s, revealing the complex of buildings north of the Seip-Pricer Mound (Fig. **75**). Pioneering remote-sensing work was first done at Seip in the 1980s, and comprehensive LiDAR and magnetometry surveys were completed in 2017 in collaboration with the Deutsches Archäologisches Institut.

2.b-**75** Seip Mound State Memorial in 1935, looking south and showing the newly-reconstructed Seip-Pricer Mound and an encircling road and parking area since removed. (Ohio History Connection)

Meanwhile, the site had expanded significantly in 1990 when the last Seip family heir, Mary Anne Schlegel, bequeathed the land to the Ohio History Connection. In 1992, it was among the sites comprising the newly named Hopewell Culture National Historical Park. The total area inside the authorized National Park Service boundary at Seip Earthworks is 147.6 hectares; 49 of which were transferred from the Ohio History Connection in 2014, and 41.6 of which remain in private ownership, authorized for purchase in the future from willing sellers. The park maintains an interpretive mowing and landscape plan as with its other units (Fig. **76**).

2.b-**76** Aerial photo of the planting plan (initiated in 2016) at Seip Earthworks, helping visitors to visualize the enclosure wall locations. (Photo by First Capital Aerial Media)

Construction Sequence & Methods

The earthworks at Fort Ancient were built to surround an irregular hilltop, 82 meters above a narrow gorge of the Little Miami River (Fig. **77**). This short canyon was formed during the last Ice Age when ice blocked the river, which was then flowing northward into the ancient Teays system. A large glacial lake formed and eventually the water rose high enough to find an overflow point and cut the steep-sided gorge seen today below the earthworks on the west.

The design of the Fort Ancient earthworks involves a variety of techniques and materials, with evidence suggesting it was carried out in at least three phases. The southern plateau was ringed first, making the South Fort the oldest part of the enclosure. The North Fort and the connecting passage or Middle Fort appear to have been added later. The construction of Fort Ancient spanned the entire duration of the Hopewell culture, having yielded radiocarbon dates as far back as 100 BCE. Analyses of pollen from that early date indicate heavy cultivation of edible plants near the interior ponding areas, and that the surrounding area was already cleared of forests and covered with Big Blue Stem prairie grass.

2.b-**77** Computer rendering of Fort Ancient, viewed from the south. (The Ancient Ohio Trail)

Some of the 84 earthen wall segments were built at the crest of the bluff, with ditches dug to the interior, while others were placed partway down the hillside, so that a similar ditch would appear as a natural result of this placement. Many of these ditches were lined with clay and stone to serve as water-filled reservoirs and reflecting pools. The outside faces of many of the walls were extensively paved with limestone slabs brought up from the riverbanks far below. The construction of the walls themselves required over 550,000 cubic meters of earth, with

an estimated equal amount of soil also moved for other design purposes like leveling hilltops or filling the ravines near the Great Gateway and in the North Fort. (This amount of soil equals that used in the construction of Monks Mound, the largest at Cahokia, nearly 1,000 years later.) The whole northern plateau was stripped down to the clay subsoil to make it flatter and to provide material for the walls. The natural gullies that cut into the plateau were also blocked by continuing the walls down through them, creating more ponds.

Archaeologists have discovered that many of the walls were constructed in stages, often identifiable by the presence of an interim layer of vegetative soil. At least one wall of the North Fort (nearest the Twin Mounds) was built on a cleared and prepared clay floor, first with three low earthen parallels followed by alternating layers of orange and dark gray soil, and a final layer of brown-gray silt on top. Flat slabs of limestone were stacked along the exterior perimeter, and then extended farther up the wall surface.

Similar limestone reinforcement and surfacing has been detected in several other locations (Fig. **78**); Moorehead, for example, observing the western wall of the South Fort, referred to a stone "backbone" around the entire enclosure. Flat, stacked limestone slabs have also been found similarly reinforcing the slopes on both sides of some of the gateway passages. Excavations have been quite limited, but in one location, postholes were found beneath the wall suggesting that a timber palisade preceded the construction of the earthwork; in another, gray clay used in the wall was derived from maintaining the nearby ponds.

Over many generations, up to six million hours of human labor would have been required to build all of Fort Ancient. From the complexity of the construction and the extensive evidence of human activity both inside and outside the walls, it is clear that the enclosure was conceived as a place of ceremony and assembly throughout the Hopewell era. There is no evidence of warfare during this time so, as elsewhere, the name "fort" is a misnomer.

2.b-**78** The exterior face of Fort Ancient's walls, here near the South Gate, showing large limestone slabs among the leaf litter.

2.b-**79** Excavation trench at the center of the Moorehead Circle, showing the lens of bright, red-orange soil. (Photo by Robert V. Riordan)

Evidence of Fort Ancient's ceremonial meaning and intent is clear in three areas in particular. First, the sources of the two intermittent streams near the Twin Mounds, Randall Run and Cowan Run, were artificially lengthened with ditches in order to complete a symbolic water boundary for the site, incorporating the two streams and the river far below. Second, inside the North Fort, four mounds were laid out in a near-perfect square and covered in limestone slabs on which huge fires burned; two of these mounds serve as back-sights for lunar and solar rise alignments.

Most dramatically, in the western half of the North Fort, near the head of one of the major ravines leading down to the Little Miami River, a 60-meter diameter woodhenge, now called the Moorehead Circle, consisted of a triple ring of timber posts, each set more than a meter in the ground and chinked with limestone. The entrance to the circle was paved with stones, and at its center a five-meter-wide pit was dug, and a lens of sterile, burned, astonishingly bright, red-orange soil was laid down (Fig. **79**). Around this dramatic central feature, elaborate combinations of stone lines, timber posts, additional reddened soil, and other features, were arranged. After the last ceremony was performed here, the site was decommissioned by removing the wooden posts and burying the circle beneath layers of gravel hauled up from the riverbed far below.

At least seven structures were built in the North Fort, in the vicinity of the present museum, dating to the same period of time as the construction of the walls, but no evidence for dwellings has been found within the square formed by the four stone-covered mounds.

2.b-**80** Many of Fort Ancient's enclosing walls remain in dense forest today, as here along the southeastern perimeter of the Middle Fort (Gates 18 & 19).

Interim Centuries, Fort Ancient Culture

The forest on the plateau had been entirely cleared by the earthwork builders, but after about 400 CE, trees returned to engulf the earthworks. Much later, between 1000 and 1450 CE, a group of American Indians built a village in the western arm of the South Fort. Typical of that period, their settlement had a large number of houses and was surrounded by a stockade. At its largest extent, it was estimated to cover between six and eight hectares, and included a cemetery. (It likely resembled the contemporaneous SunWatch Village reconstructed near Dayton, Ohio, Fig. 2.b-**7**, page 129). A number of its burials were also interred within the wall of the adjacent earthwork. It was the discovery of this village that resulted in the naming of the "Fort Ancient" culture, when it was assumed that these villagers had built the earthwork. In contrast to the Hopewell culture, for whom the earthen enclosure served a ceremonial purpose, these later people may have located their village here because the ancient walls afforded at least some measure of safety.

Early 1800s Settlement

Euro-American settlement of the area around Fort Ancient did not begin until after the 1795 Treaty of Greeneville. The nearby towns were established between 1796 and 1803, the year Warren County was officially established by combining three large land tracts of the Virginia Military District.

In 1804, a stagecoach route was created to link the new settlements of Lebanon and Chillicothe. It traversed the narrow gorge beneath Fort Ancient, crossing a shallow point in the river and climbing the steep eastern bluff, before cutting through the earthworks; two of the ancient gateways were widened so they could accommodate wagons. This route later became Ohio State Route 350, bisecting the North Fort on an east-west axis, and continuing on its way to Chillicothe between the Twin Mounds.

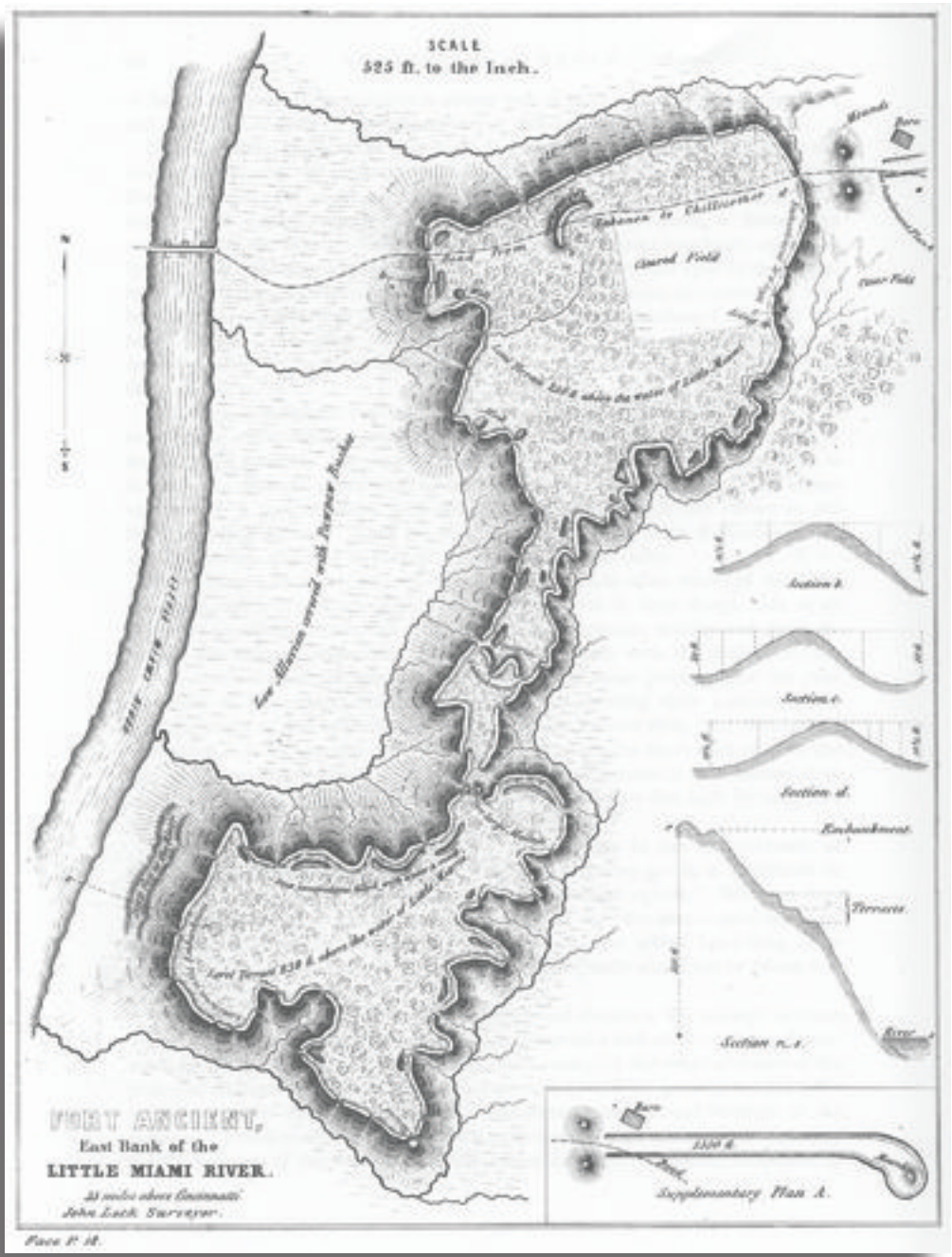
The first permanent buildings in the immediate area of Fort Ancient were in the river valley below the site. After the completion of a bridge in 1841, and the Little Miami Railroad in 1844, they quickly grew into a village, called Fort Ancient, between the river and the rail line, with its own train station and hotel.

Early Archaeology, Preservation

The presence of the Fort Ancient Earthworks was, of course, obvious to these early settlers, in particular those constructing the Chillicothe-Lebanon Pike in 1804. The monument gained national attention five years later when a map and description were published in *The Port Folio*, a Philadelphia literary and political magazine, wherein it was described as an "Ancient Fortification." Fort Ancient was next featured in 1820, in Caleb Atwater's "Description of the Antiquities Discovered in Ohio and other Western States."

As early as 1833, the idea of preserving Fort Ancient was being discussed and encouraged by leaders from beyond the immediate area, including the famous early nineteenth century orator and U. S. Congressman Daniel Webster.

2.b-**81** Map of Fort Ancient published in Squier and Davis's *Ancient Monuments of the Mississippi Valley* in 1848, including cross-section drawings of walls and hillsides.



In the following decade, Ephraim Squier and Edwin Davis featured Fort Ancient in their *Ancient Monuments of the Mississippi Valley*. They incorporated John Locke's "faithful survey" and description of the site originally published in 1843 (Fig. **81**). All of these early authors interpreted the site as an ancient fortification. Squier and Davis wrote, "Under a military system, such as we feel warranted in ascribing to the people by whom this work was constructed, it must have been impregnable." Despite the publicity, most of the 1800s saw the earthworks divided among several landowners who, having first cleared the forests, cultivated crops and pastured their sheep and cattle within the enclosure.

Although people had been digging into the mounds for decades, the first recorded archaeological excavations were those of Lewis M. Hosea in 1874. He spent only a few days examining the site, yet made many important discoveries, which he reported in the *Cincinnati Quarterly Journal of Science*. He uncovered traces of a "well laid pavement of flat river-worn" stones within the now-lost northeastern parallel walls, and suggested those walls reflected an interest in alignments to the "sun in his rising and setting." He also investigated the village area in the South Fort, identifying the remains of between 30 and 40 lodges "disposed in nearly regular order" and recognizing that their "comparatively fresh and recent appearance" indicated that this "occupation was subsequent to the construction of the work itself." Increasingly detailed investigations were undertaken later and published by Professor Putnam, and by Moorehead.

Acquisition & the Park

In 1890, the Ohio General Assembly appropriated funds to purchase Fort Ancient for the State of Ohio. The following year, the legislature authorized the OSAHS to manage the site, also making it Ohio's first state park. Following the initial 73-hectare purchase, it took 18 more years, until August of 1908, for the state to acquire the additional tracts necessary to protect all three principal sections of the enclosure.

2.b-**82** Photo of early tourists at Fort Ancient, showing the earthen walls in the background, the interior cleared of trees, and an early unpaved road through the site. (Ohio History Connection)

The Ohio National Guard held military exercises at Fort Ancient in the summer of 1910. Nearly 3,000 soldiers set up tent camps and practiced "storming the walls" along the steep northern rim of the South Fort. In the process, as many as 75,000 blank cartridges were discharged, and despite the soldiers' own best efforts to collect them, many undoubtedly remain in the archaeological record.

In the first decades after its acquisition and establishment as a park, beautification and protection efforts were underway, including a concerted effort to clear the earthwork of overgrown brush. Fences were constructed to keep grazing cattle from neighboring farms off the walls. Assessment reports in 1913 and 1914 discussed stabilization efforts after the great 1913 flood resulted in "the hillsides in certain places beneath the fort embankments" being "carried away." The custodian of the site planted willow trees where the mudslides had occurred to prevent further damage.

Roads & Infrastructure

The park quickly drew both casual explorers and scholars (Fig. **82**). Through the 1920s, the focus was on upgrading roads and amenities for the dramatically increasing numbers of visitors. A few documented occasions saw hundreds of visitors coming to witness special excavations carried out by Moorehead and other archaeologists. Annual visitation had grown to 15,000 by 1920, and the rapidly growing popularity of the automobile was having a major impact. By 1924, most Sundays would see between 350 and 600 cars entering the park. At this point there was no museum at the site to help these increasingly large numbers of visitors understand its history and importance, and all of the artifacts from the many late nineteenth-century excavations were stored in Columbus, the state capital.

Site amenities added during the 1920s included a new well to supply drinking water for guests, a picnic shelter, and a wooden deck structure for what became known as the North Overlook (Fig. **83**). Some amenities served both to accommodate the tourists and to protect the site. For example, with increased auto traffic, the narrow dirt road to the lookout had become a problem: when cars got stuck in the mud, or the road was too crowded, drivers would simply cut across the grass, causing damage to the site. So in 1928, a new roadway was constructed to the overlook.

Although most of these public efforts were focused on the practical needs of visitors to the site, the need for a museum did not go unanswered. In 1925, a private site museum was opened by Clifford C. Anderson, a trained archaeologist who had worked with Moorehead. Returning in 1918, he and his new wife worked for many years, at their own expense, conducting explorations and amassing a sizeable collection of artifacts, particularly of the Fort Ancient culture. In the early 1920s, they built a small museum, facing the road between the river and the base of the bluff, to exhibit their collections. It opened to the public in October of 1925. (The vacant building remains, in the Buffer Zone.)

During the Great Depression, the Civilian Conservation Corps did considerable work at Fort Ancient to control erosion. These teams also installed concrete and ceramic drains to allow the water which still collected in many of the ponds (as the builders intended) to escape

down the hills. They constructed the picnic shelter which still stands in the South Fort, plus pathways including today's Earthworks Trail. At this point, there were a total of twelve structures in the picnic area, of which six remain today. They also restored mounds and earthworks to their known, mid-nineteenth-century dimensions. Overall, this period was one of the most concentrated efforts to preserve and develop the park.

In 1936, the present caretaker's house was constructed in the North Fort. In December of 1938, CCC construction crews returned and enlarged the highway road cut on the eastern side of the North Fort. This revealed a deposit of midden, associated with an exterior "moat," including Hopewell ceramics, mica fragments, and animal bones. In the same year, the site was re-named Fort Ancient State Memorial, indicating that it was set aside for purposes other than purely recreational.

Visitor statistics from the 1930s show that the site continued to increase in popularity. Annual attendance in both 1934 and 1935 was 40,000, but doubled to 80,000 in 1936. The following year it was 100,000, and in 1938 it was 110,000. Meanwhile, Richard Morgan, the OSAHS's Curator of Archaeology, began his research at Fort Ancient in September of 1939. He spent several weeks investigating areas between the Twin Mounds and the North Fort, and opened a trench in the South Fort to try to locate the cemetery that had been described by Moorehead. Morgan's work finally established that Fort Ancient was constructed during the Hopewell era, and that the people of the "Fort Ancient culture" were later occupants in and around the site.

The OSAHS purchased and remodeled Clifford Anderson's private museum down in the valley in 1944, and operated it for public visitation for twenty years. Fort Ancient was designated a National Historic Landmark in 1964, its significance associated with both the Hopewell and Fort Ancient cultures. In 1967, a new building expressly designed as a museum and gift shop was constructed within the walls of the North Fort; that structure forms the core of the present building. The exhibits focused nearly equally on the Hopewell and Fort Ancient cultures, plus material from the whole of the pre-contact Ohio Valley.

Museum Expansion, Recent Investigations

The four mounds that form the square in the North Fort, having been initially restored in the 1930s by the CCC, were given new, protective limestone coverings in 1995. Robert Connolly excavated a one-meter trench into the earth wall next to State Route 350 to accommodate a new water line; this gave archaeologists the opportunity to examine the structure of the adjacent walls and to determine that they had been constructed in stages.

In 1998, the museum building was renovated and enlarged, becoming the last large-scale building constructed on the site. The museum expansion increased the floor area from 279 to 1,115 square meters. A distinctive feature of the design is a diagonal glazed passage that captures the alignment along one side of the square defined by the four stone-covered mounds (Fig. **84**). Outside, a 1,394-square-meter garden was established to showcase crops grown in the region 2,000 and 1,000 years ago. Before the museum's expansion, Connolly

2.b-**83** Historical photo of the first "Overlook" structure, now called the North Overlook. (Ohio History Connection)

directed an archaeological investigation of the footprint of the proposed addition and the adjacent garden area and utility lines. His work yielded data to inform the reconstruction, in the museum's garden, of a 5- by 8-meter Hopewell house (Fig. **85**). It required seven tons of clay for the walls and 1.2 hectares of prairie grass for the roof.

In 2005, a remote sensing survey was made of the western side of the North Fort, as part of preparations for the repair of drainage and erosion issues in the large ravine. The images revealed the remains of the large woodhenge, later named the Moorehead Circle in honor of Fort Ancient's noted early archaeologist and preservation advocate. Robert Riordan and teams from Wright State University began a multi-year investigation of the Moorehead Circle in 2006, which uncovered many of its remarkable features.

2.b-**84** The current museum's northwest corner, showing the angled slot acknowledging the line connecting two of the mounds comprising the square.

2.b-**85** Reconstructed Hopewell-era house in the museum's period garden, based on the findings of salvage excavations beneath the building's footprint.

Section 3:
Justification for Inscription

3

"The people who built these mounds were brilliant. Their genius lies in combining complexity and simplicity simultaneously. Their mathematical and astronomical complexities challenge our mental capacity while simultaneously their simple (forms) evoke a calming, soothing, and in some instances a spiritual effect."

Glenna J. Wallace
Chief, Eastern Shawnee Tribe of Oklahoma

Justification for Inscription

Filling the Gaps

Pre-contact Indigenous American sacred architecture is specifically singled out in ICOMOS's 2005 study, "The World Heritage List: Filling the Gaps – an Action Plan for the Future." Although the Cahokia Mounds State Historic Site and Monumental Earthworks of Poverty Point are inscribed, properties of religious significance to the Indigenous peoples of the eastern United States are still poorly represented. Moreover, sites of North America's "Archaic cultures and early agriculturalists" are represented only (since 2014) by Poverty Point, while those of Indigenous North American "Great Lakes, Laurentian and Appalachian cultures" are as yet not represented at all.

The Hopewell Ceremonial Earthworks reflect "early archaeological sites and the beginning of cultural diversity," one of three areas of emphasis adopted in the World Heritage Committee's 2010 "Thematic Programme on Prehistory." A creative florescence of art, ceremony, and monumental architecture, they bear testimony to the transformation of a hunter-gatherer society into the more settled life of farmers. Specifically, their vast landscape scale, their precision and complexity, and their celestial alignments, speak eloquently of a shift in human understanding associated with new ways of relating to the earth (subsistence production), and to the sky (cosmic rhythms).

Also in 2010, UNESCO's "HEADS Program" (Human Evolution: Adaptations, Dispersals and Social Developments) emphasized several property types and attributes prominent in this nomination. These are: "deposits containing human remains, including intentional ones, such as burial sites, funeral mounds and megalithic tombs; artificial alterations to the landscape, or drainage works, ditches and enclosed areas; (and) places of sacred or spiritual value, or forming part of associative cultural landscapes." It also mentions "sites of importance to the history of science." While they are obviously sacred landscape enclosures encompassing human burials, the Hopewell Ceremonial Earthworks also reveal Indigenous ways of knowing the natural world. They were also central to the establishment of the modern science of North American archaeology.

The "World Heritage Earthen Architecture Programme" (WHEAP) was adopted by the World Heritage Committee in 2007. Unlike most examples discussed under this initiative, which remain traditional "buildings" made with earthen materials, the Hopewell Ceremonial Earthworks manifest a completely different type of understanding of how earth can become architecture. Their form (an undulated, swelling surface of the earth itself), their scale (a vastness of spatial enclosure almost beyond human eye-level perception), and their precision (dimensions and exactitude achieved over multiple kilometers) are completely unique.

Finally, and of special relevance to this nomination, the "Astronomy and World Heritage" thematic initiative, developed since 2004 at the request of the World Heritage Committee, aims "to establish a link between science and culture on the basis of research aimed at acknowledging the cultural and scientific values of properties connected with astronomy." The Hopewell Ceremonial Earthworks connect the monumental public works of an early society with an immensely sophisticated and widely shared knowledge of astronomical, especially lunar, phenomena, measured and marked across vast landscape vistas. The ICOMOS reports (2010 and 2017) make scant mention of the long cycle of lunar rise and set points, or to the moon at all except in relation to its phases. The authors cite no other pre-modern monuments worldwide which align precisely to the complex, 18.6-year pattern of the moon's movements along the eastern and western horizons.

The Hopewell Ceremonial Earthworks thus offer the World Heritage List a unique set of underrepresented attributes, including remarkable types of scientific and cultural achievement even beyond those envisioned by these UNESCO initiatives. They contribute to a more representative and balanced World Heritage List, as Indigenous sacred sites from a region and time period that are not already represented. When joining Poverty Point and Cahokia, their inclusion will be an important step towards World Heritage recognition of the full range of Indigenous North American earthwork-building traditions—a grand narrative of human cultural development spanning over three millennia.

Brief Synthesis

The Hopewell Ceremonial Earthworks are a series of eight ancient Indigneous ceremonial earthwork complexes built along the central tributaries of the Ohio River in east central North America between 2000 and 1600 years ago. Conceived and constructed as ceremonial centers, they are the finest and most representative surviving expressions of the cultural flowering and distinctive genius of the Indigenous people whose socio-religious movement is now called Hopewell. They enclose immense areas, from 6.81 (Mound City) to 55.34 (Hopewell Mound Group) hectares, and retain evidence of timber structures, water features, domestic and ritual facilities, and elaborate earthen construction methods.

The scale and complexity of these earthworks is evident in precise combinatory geometric figures, mortuary precincts, and hilltops sculpted to enclose vast, level plazas. The enclosed figures include squares, circles, and octagons, executed with an astonishing precision of form, technique, and dimension, consistently deployed across a geographic region extending over hundreds of kilometers. Many include astronomical alignments, not only with the sun's cycles, but also with the far more complex rising and setting patterns of the moon.

These ceremonial centers were the settings for feasts, funerals, and other civic and religious activities. Their builders lived in dispersed, non-hierarchical, non-urban groups whose mixed economy combined foraging and fishing with increased farming. Yet these massive public works were at the center of a social and religious movement that drew together disparate peoples across the eastern Woodlands in networks of interaction, diplomacy, and pilgrimage. These social connections were mediated through gifts and exchanges of exceptionally beautiful, finely crafted ritual objects fashioned from raw materials obtained from distant parts of the continent.

This series of earthworks, with their associated artifacts and in-situ archaeological resources, bear eloquent testimony to the distinctive fluorescence of an early culture which nonetheless developed a sophisticated and widely-shared knowledge of geometry, astronomy, earthen construction methods, and exotic material artistry.

Criteria

The Hopewell Ceremonial Earthworks are a remarkable series of architectural monuments that encompass enormous landscape spaces with uncanny geometric precision and in alignment with the order of the cosmos. Their design and construction embody their builders' remarkably high intellectual achievements in geometry and astronomy, making them the peak of this form of cultural expression for the Hopewell tradition, and extremely rare among early societies generally. Very large and near-perfect geometric shapes (circles, squares, and octagons) are replicated with the same or related dimensions at sites often far from each other. Numerous and varied precise astronomical alignments are marked in their designs, sometimes in relation to distant natural landforms.

All this precision reveals profound human creative genius manifested in two primary ways. The first is in a necessarily long tradition of observing, recording, and understanding the movements of celestial bodies; the second is in a sophisticated technology of designing, surveying, and constructing huge, intricate architectural monuments that accurately mark

those movements, and display other types of rigorously accurate geometrical order. The Hopewell Ceremonial Earthworks, as masterpieces of human creative genius, are all the more spectacular for having been conceived and developed using knowledge shared over a wide geographic area, and across multiple generations, yet within a dispersed, non-urban, non-hierarchical society.

Extant elements and features enable the nominated Property to convey the depth of knowledge of these ancient American Indians regarding geometry, mensuration, and astronomy. These enormous works also embody their ability to sculpt that knowledge into standardized shapes, positioned and configured to align precisely with the pivotal risings and settings of the sun and moon. While solar orientations are widely known among early societies, their presence together with geometric forms that are highly precise, and that also capture the more complex patterns of the moon, is exceedingly rare worldwide. This is demonstrated below in Section 3.2, the Comparative Analysis.

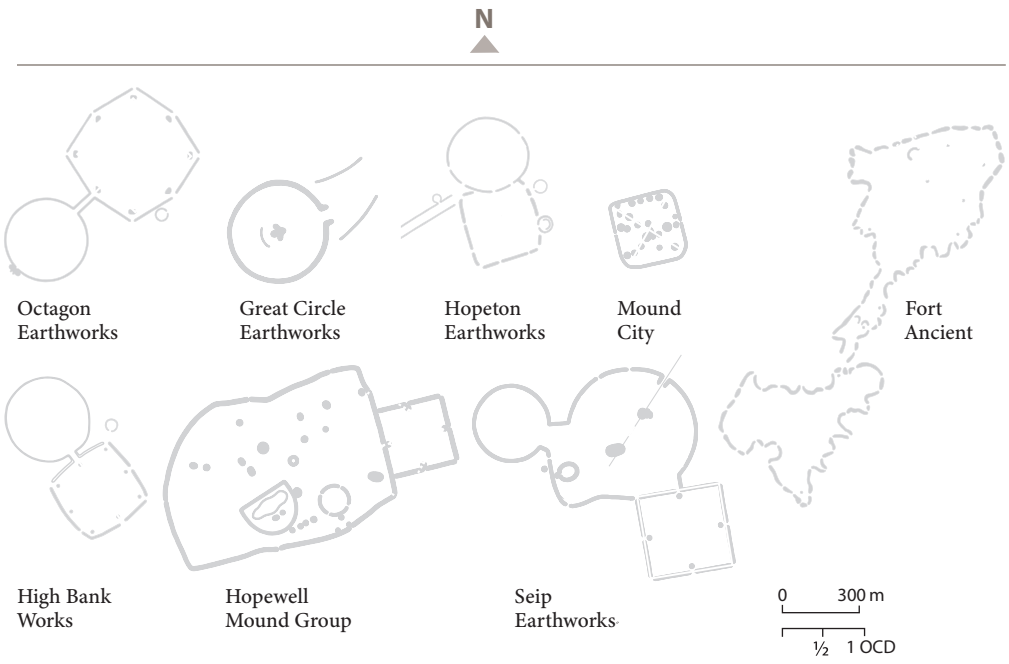
Attributes Associated with Criterion (i):

Attribute i.A: **Geometric Precision** of vast scale and complexity

Attribute i.B: **Astronomical Alignments** of great variety and accuracy

Attribute i.A: Geometric Precision

The Hopewell Ceremonial Earthworks demonstrate a sophisticated knowledge of geometry, apparent at all of the nominated sites, as detailed in Section 2.a. This knowledge included techniques for laying out and constructing by hand near-mathematically perfect figures (circles, squares, octagons, and parallel lines) on a vast scale, with near-perfect symmetry, precision, and geometrical harmonies. The shapes were often combined and inter-related with each other through shared dimensions, areas, orientations, or distant vistas.



3-**1** Diagrams locating the OCD or simple derivations (halves, quarters, diagonals) in all but one of the nominated components; tolerance for OCD conformance here is +/- 2.5%. All cited OCD measurements are between the centerlines of walls and/or the centerpoints of mounds.

Many of the Hopewell earthworks reflect the use of a standard unit of measure, defined as the "OCD" (Observatory Circle Diameter, at Newark, see Sec. 2.a, page 52; and Fig. 3-**1**). A system of units, derived from a standard square with a side of 321 meters and a diagonal of 454 meters, calibrates the size of figures and also the longer distances between them. The Earthwork geometries contain inscribed figures; in other cases near-identical complex dimensions and relations are repeated at multiple locations.

Layout and measuring techniques included the ability to construct angles, match distances, and extend straight lines over distances of up to two kilometers or more, impossible to achieve by mere pacing and approximation. The construction and derivation of squares required knowledge of either the 3-4-5 right-triangle relation, or the empirical simultaneous adjustment and reconciliation of their diagonals, or both, and the ability to execute them over enormous distances.

The geometric ordering included obscure connections between squares and circles—the ability to harmonize areas and perimeters of unlike figures, such as "squaring the circle" (See Fig. 2.a-**28**, page 63). The construction of large-scale circles, squares, octagons, and ovals with near equivalent areas is otherwise still unknown among the archaeological and ethnographic evidence of early or pre-urban cultures, as apparent from the Comparative Analysis.

Further correspondences of dimension, orientation, area, and horizon-relations, at varying latitudes, show evidence of a remarkable genius in both thought and execution. Systemized knowledge of complex patterns and sophisticated techniques was shared across multiple generations, and across a wide area of the central Ohio Valley region.

Attribute i.B: Astronomical Alignments

The Hopewell Ceremonial Earthworks incorporate an unusually large number of diverse types of astronomical alignments in their designs. Precise alignments between earthwork features and points on the horizon mark the limits of the rising and setting of the sun and moon across their respective cycles. This achievement implies traditions of observation and knowledge accumulation, as well as the skills in large-scale geometric execution mentioned above. In particular, the complexity of the 18.6-year "long lunar cycle" (also called the "nodal cycle") required observational record-keeping that was consistent, well-organized, and sustained over many generations. There is no evidence of a similar achievement of this magnitude among ancient societies worldwide.

Each component of the series contains alignments to one or more of the defining lunar or solar phenomena, in their primary axes or diagonals, gateways or parallel walls, or between key vertices (detailed in Section 2.a). These phenomena include the minimum and maximum northern moonrises and moonsets, the minimum and maximum southern moonrises and moonsets, and the summer and winter solstice sunrises and sunsets. All twelve of these key horizon points are marked in the architecture of one or more of the nominated sites, or, in one case, between the focal point of the site itself and a distinctive horizon profile. In another case, the key alignment marks the cross-quarter sunrise in early May, a date with calendrical (and perhaps ritual) significance in a proto-agricultural society.

Recent archaeological evidence has shown that ceremonial timber structures (both open woodhenges and enclosed buildings), erected prior to the construction of the earthworks, were also aligned to these celestial patterns. Other recent investigations have shown the extent to which specific horizon profiles are incorporated into these elaborate alignment schemes.

The precision of the earthworks' astronomical function is enhanced by their enormous size. Their spatial effects as "enclosures" can seem obscure due to the sheer distance from one side to the other, and yet the very long dimensions from point to point increase their precision as sighting instruments, and reinforce their function as "artificial horizons."

The earthworks thus link space to time, and earth to sky—spatial geometries to temporal cosmic rhythms. Combined with their elaborate mortuary associations, this underscores their ceremonial purpose, to link the ritual life of the people with the patterns of calendrical time, on vast scales of both space (spanning entire valley vistas) and time (tracking the 18.6-year lunar cycle). These sites give testimony to a remarkable genius at discovering and marking the resonance between geometrical harmony and astronomical harmony—a mirroring of their world order in space and in time, respectively.

The 2010 and 2017 ICOMOS Astronomy and World Heritage thematic studies rightly caution against gratuitous or random "astronomical alignment hunting" and offer instead two key criteria for judging intentionality. First, there should be "geographically and chronologically well-defined clusters of architecturally similar constructions where systematic analyses can be, and have been, undertaken." Second, only "clearly identifiable principal axes or other major structural orientation" should be taken as deliberate rather than incidental. The cited alignments at the Hopewell Ceremonial Earthworks meet both of these criteria, and also meet or exceed a precision standard within 1.5 degrees of azimuth.

Indeed, with respect to these stringent criteria, it is significant to note that the pioneering scholars of Hopewell-era astronomy, Ray Hively and Robert Horn of Earlham College, began their investigations with great skepticism. Beginning at Newark's Octagon Earthworks, they expected to demonstrate that it would be easy to find random solar alignments. This only added to their astonishment at finding none of the six key solar alignments, but instead all eight of the lunar ones.

The Hopewell achievement of aligning monuments precisely to the key points on the horizon marking the 18.6-year lunar cycle appears to be unique, or at least extremely rare, in the world. Both of the ICOMOS Astronomy and World Heritage thematic studies contain only passing reference to this phenomenon, and no site other than Stonehenge seems to be connected with it in more than a cursory way.

The alignments of comparable monuments treated in these reports are overwhelmingly solar. The few with associated conjectures about the moon are related mainly to seasonal rise and set positions of lunar phases—for example, the seven-stone antas in Portugal and Spain, and certain stone circles and cairns in Scotland. These and most other lunar alignments cited are also acknowledged to be imprecise. The long lunar rise-and-set cycle is noted primarily to suggest that its complexity is likely the reason for its absence from all of the ancient monuments cited—again with the exception of Stonehenge.

Although the later (2017) report acknowledges that the lunar cycle was of interest to Indigenous North Americans, the Hopewell examples are not cited. Reference is made to a few New World examples where lunar alignments have been hypothesized; of these, Chaco and Cahokia will be treated below in Section 3.2, the Comparative Analysis.

The Comparative Analysis will also discuss several of the global examples taken up in the ICOMOS Astronomy and World Heritage studies, before concluding that the Hopewell achievement of encoding the long lunar cycle is apparently unique. The Hopewell Ceremonial Earthworks' manifestation of this phenomenon both comprehensively (at the Octagon Earthworks and High Bank Works), and at multiple sites (also at Mound City and Fort Ancient) appears to be unparalleled.

Attributes Supporting Criterion (i) at Individual Sites

(Attributes i.A & i.B)

Complex geometry, standard unit of measure (OCD), exact dimensional and formal derivation; precise alignments to all eight lunar rise and set points, correspondence of forms and principles with High Bank Works, evidence of widely shared technical and ritual knowledge.

(Attribute i.A)

Prototypical and largest intact monumental circular enclosure.

(Attributes i.A & i.B)

Hopewell standard measurement unit, complementary geometric forms; marks two solar alignments.

(Attributes i.A & i.B)

Characteristic geometry of rounded-square enclosure, consistent with shape used at multiple scales in Hopewell art and architecture; both solar and lunar alignments from the site to its distinctive eastern horizon.

(Attributes i.A & i.B)

Mirrors Newark Octagon's geometry with exactly perpendicular axial orientation, matching dimensions and forms, almost equivalent precision; marks all key rise and set points of both the sun and the moon.

(Attributes i.A & i.B)

Similar square orientations with Seip and Mound City, OCD dimensions in square and large circle; solar alignments of the post circle and the square's diagonal (as at Mound City, Hopeton, and Seip).

(Attributes i.A & i.B)

OCD relations between dimensions of square and large circle, exemplifies complex yet consistent combinatory geometries found at four other (now mostly lost) "tripartite" earthworks; orientations and alignment properties shared with other sites in this series.

(Attributes i.A & i.B)

Four mounds defining a standard dimensioned square of one-half OCD; two of which align through gateways to lunar and solar events.

Introduction

The architectural and artistic brilliance of the Hopewell culture is all the more remarkable for having been achieved by a dispersed, non-urban, non-hierarchical, egalitarian society with a subsistence economy based on hunting, gathering, and the cultivation of native wild and domesticated plants. Although this cultivation involved the clearing and managing of large areas for food production, this was well prior to the emergence of intensive maize agriculture of the scale that could support urban populations such as those that built Cahokia (See page 242).

The components of the nominated serial Property mark the center of a wide-ranging sphere of cultural interaction and influence extending across much of North America. These sites have revealed a concentration of exotic raw materials drawn from locations spanning two-thirds of the continent, many skillfully crafted into exquisitely beautiful ritual artifacts. Also concentrated at these Ohio sites is evidence of specific cultural practices that were shared by disparate peoples scattered over a large portion of the continent. The huge earthen forms were crafted in carefully selected and composed layers and types of soil, and were embellished with stone and water features. The designs and processes reveal the communal and ceremonial nature of the construction, as well as the ritual significance and use of these sacred precincts.

Extant elements and features of the nominated component sites enable the Property to convey: a/ the ceremonial and ritual life of the Hopewell culture, evident in the scope and sophistication of architectural investment; and b/ its continent-wide interaction sphere, evident in its unparalleled acquisition and artistry in exotic materials.

Attributes Associated with Criterion (iii):

iii.A **Elaborate Ceremonialism** of a non-hierarchical, non-urban society

iii.B **Continent-wide Interactions** with widespread influence and exotic material acquisitions

Attribute iii.A: Elaborate Ceremonialism

The Hopewell Ceremonial Earthworks were non-urban centers of ritual and assembly where otherwise dispersed social groups and pilgrims gathered for feasts, mortuary ceremonies, and other shared activities. The earthworks and mounds often mark the locations of decommissioned timber-framed buildings that once hosted these rituals and events. Grand timber and earthen monuments were the architectural settings in which small-scale, dispersed groups of hunter-gatherer-farmers in the greater Ohio Valley region were woven into a larger, shared socio-religious community through periodic gatherings and communal celebrations of mortuary and other religious rites.

Architectural and artistic achievement on this scale and of this sophistication usually is associated with hierarchically organized, densely settled urban societies reliant upon intensive agriculture. Instead, the Hopewell Ceremonial Earthworks were created by small

and dispersed societies without hereditary kings or chiefs, supplementing a hunter-gatherer economy with food cultivation, but without a commitment to intensive maize agriculture. The archaeological record reveals that the builders of the Hopewell Ceremonial Earthworks lived in year-round settlements, but that these were small, dispersed hamlets, not the dense urban villages most often associated with monumental architecture.

The construction of the earthworks was a large-scale collaborative enterprise, requiring the organization of massive gatherings from among these dispersed settlements, and complex sequences of technical work. They are not mere piles of dirt: earthwork building involved elaborate construction techniques, meticulous site preparations, symbolic color usage, and often intricate layering. The builders sought out and acquired particular soils that would create durable shapes, or hold water, or preserve for eternity their sacred artifacts and deceased kin, all with appropriate honor.

The construction and use of these vast and elaborate architectural settings provided cultural cohesion, and reflected new ways of visualizing and understanding the earth and sky. For a non-urban culture with a uniquely mixed economy, the Hopewell Ceremonial Earthworks manifested heightened meanings of the fertile earth, and focused experiences of the ordered cosmos.

Attribute iii.B: Continent-wide Interactions

Hopewell religious practices were shared across an interaction sphere extending to otherwise distinct cultural groups throughout most of eastern North America. Characteristic ceremonial artifacts found in earthen mounds and enclosures, widely scattered from the lower Mississippi River valley to the Appalachians (See Fig. 2.b-**5**, page 127), reveal the wide geographic reach of Hopewell influence, knowledge, and culture. Commonalities include pottery decoration, burial regalia and practices, tomb design, and even a few earthwork features and dimensions.

The extraordinary quantity, exquisite artistry, and material variety of the ritual objects associated with the nominated Hopewell Ceremonial Earthworks show that this region was the focal center of this influence and interaction. Artifact concentrations at these sites are qualitatively and quantitatively distinct from those elsewhere, indicating that the elaborate ceremonial and ritual spaces at these sites were likely pilgrimage destinations, or the starting and ending points of long-distance quests. The raw materials and exotic objects were being moved into Ohio, but rarely out; they may have been gifts among human and other-than-human beings, forging ties of alliance and reciprocity.

The exotic raw materials found at the nominated sites include copper, mica, obsidian, and marine shell, brought from distant parts of North America. They were exquisitely crafted into the quintessentially Hopewell symbols, including ritual implements and regalia, bi-cymbal earspools, panpipes, and ceramic vessels with distinctive decoration. Copper and mica were cut into refined and delicate designs including elegant abstractions of human,

animal, plant, as well as non-representational forms. Obsidian was formed into oversized ritual blades as long as 45 centimeters. Stone was carved into elaborate sets of animal effigy smoking pipes and other figures.

The aesthetic quality of the objects from the nominated sites is acknowledged as outstanding, even in the context of all Indigenous American Indian artistry and craftsmanship. Hopewell artifacts are showcased in the collections of major art museums such as the Art Institute of Chicago, the Gilcrease Museum in Tulsa, the Brooklyn Museum, and the Metropolitan in New York, as well as world-renowned anthropology museums including Chicago's Field Museum and the British Museum. (Very significant collections remain in Ohio – at the Ohio History Center in Columbus, and at Hopewell Culture National Historical Park in Chillicothe.) Much of the iconography in these works, while distinctively Hopewell, reflects themes that still resonate among Woodland tribal cultures—in particular beliefs about the relations between the human and natural worlds, including specific animals of the eastern woodlands.

The most elaborate material traces of Hopewell ceremonial life, and its continent-wide sphere of influence, are documented in the forms of these nominated mounds and earthworks, and in the elaborately crafted ritual objects associated with them. The Hopewell Ceremonial Earthworks present exceptional evidence of the characteristic life ways and distinctive rituals of their builders, and situate them as the dominant cultural force in their time across much of North America.

Attributes Supporting Criterion (iii) at Individual Sites

(Attributes iii.A)

Astronomical and geometrical precision emphasizes the cosmic/ceremonial nature of the earthworks; High Bank connection shows widely shared technical and ritual knowledge.

(Attributes iii.A, iii.B)

Water-filled ditch and contrasting soil colors for inner and outer portions of the wall indicates ceremonial or aesthetic canons shared at other sites; timber ceremonial structure preceded Eagle Mound.

(Attribute iii.A)

Elaborate earthen wall foundations and soil-color patterns shared elsewhere; huge post circle illustrates ritual facilities; evidence of ritual initiation of earthwork-building episodes.

(Attributes iii.A, iii.B)

Artifacts and in-situ remains show mortuary facilities and practices; large quantities of exotic materials from throughout the interaction sphere; masterpieces of artistry and craftsmanship; evidence of water-retaining perimeter ponds indicate soils knowledge and symbolic importance of water.

(Attribute iii.A)

Timber-post structures preceding the earthworks; complex layering of carefully selected and segregated soils and stone cobbles; twinned geometry and astronomy with Newark's Octagon indicating region-wide knowledge traditions.

(Attributes iii.A, iii.B)

Unique hybrid design including hilltop and geometric segments; water-retaining features on the upper slope; post circle ritual facilities with solar alignments; most spectacular concentration of associated ritual deposits; huge quantities of exotic raw materials from throughout the interaction sphere; elaborate evidence of mortuary and other ceremonial activities.

(Attributes iii.A, iii.B)

Evidence of large timber buildings; extensive ritual deposits of exotic materials from far reaches of the interaction sphere; finely crafted artifacts evidencing mortuary and other ceremonial symbols and practices; oversized pipes evidence of links with distant groups; similarity to other tripartite earthworks indicates social/ceremonial consistencies.

(Attribute iii.A)

Largest and best preserved hilltop ceremonial enclosure; evident use of complex soil combinations and stone facings in wall construction; massive quantities of landscape modification and earth movement; intact pavements, rings, circles, and water features; detailed evidence of post circle and related ritual facilities.

Statement of Integrity

The Serial Property

The eight sites included in this nomination are excellent representations of the principal features of approximately 38 other earthwork complexes of substantial size or complexity that are known to be of Hopewell origin, and that were documented in the nineteenth-century (See Fig. 2.b-**3**, page 125). As detailed in the Comparative Analysis, Section 3.2, other sites with any surviving elements are either not well preserved, or do not exhibit major features that support the Outstanding Universal Value. This series of eight selected sites offers the clearest testimony to both the genius and the culture of the Hopewell earthwork builders. Section 3.1.b provided summaries of how each of the eight sites contributes to illustrating the key attributes of the Outstanding Universal Value of the series.

Within the combined 320.7-hectare area of the serial Property, the component sites possess the complete set of features, forms, and in-situ remains to convey the Property's significance. Their boundaries encompass all these extant physical attributes, and the necessary links to geographical features such as rivers. They have survived essentially intact over 2,000 years despite impacts, in some cases, from agriculture and other factors during the last two centuries. All eight components are well protected by state and federal laws and agencies, and there are no significant development pressures or other threats adversely affecting them. This information will be detailed in Sections 4 & 5.

All the elements necessary to convey the geometrical and astronomical precision of the Hopewell Ceremonial Earthworks are still physically present in the serial Property. Their vast scope and scale is legible and can be readily understood. These elements include earthwork walls, gateways, ditches, ponds, and in situ archaeological remains. Key alignment vistas to prominent horizons are also protected within or beyond the buffer zones.

The archaeological integrity of these sites has become visible in startling new ways in recent years. Remote sensing survey techniques such as magnetometry (See Figs. 2.a-**37**, 2.a-**56**, 2.a-**67**, and 2.a-**79**) have revealed not only the outlines of otherwise-degraded mounds and earthen walls, but also that these monumental features were only one aspect of the ritual landscape at these ceremonial centers. It is increasingly apparent that the vast spaces within (as well as between) the monuments were filled with timber architecture—post circles and roofed buildings devoted to a range of public ritual and ceremony.

Likewise, all features necessary to provide compelling testimony to the distinctive fluorescence of the Hopewell culture are also still physically present in the serial Property. Besides the earthworks themselves, features include the in-situ archaeological evidence of domestic and ceremonial facilities and practices, and a wide range of associated artifacts and curated collections (both at the nominated sites and elsewhere, see Section 2). In conjunction with two centuries of documentation and research, these elements enable the Property to convey the ceremonial and ritual life of the Hopewell culture, its continent-wide interaction sphere, and its unparalleled artistry in exotic materials.

The integrity of the nominated earthworks may be described through a combination of architectural and archaeological measures—that is, either as extant spatial material constructs with experiential value, or as in-situ archaeological remains with scientific research value, or both. Three of the eight earthworks remain in near pristine condition, both architecturally and archaeologically. Two more have had their earthen architecture partially or wholly restored based meticulously on archaeological and documentary evidence. The remaining components of the Property are in varying degrees architecturally degraded, but retain their archaeological integrity in near entirety; of those, three are presented today in landscape treatments that vividly reveal their scope, form, and spatial intent.

The following descriptions detail the situation of each of the nominated components.

All elements necessary to express the significance of Newark's Octagon Earthworks are included within the proposed Boundary. These include the earthen walls of the Octagon and Observatory Circle proper, the Observatory Mound, the mounds standing inside of the Octagon's eight gateways, and the small circle and wall segments adjoining the complex on its southeastern edge. The earthworks are the original built fabric with only minor exceptions: a careful restoration of the northern section following its brief period of agricultural use, and a modified 30-meter section associated with the construction of the golf club building.

The interiors of the earthwork have been impacted in only isolated spots by golf-related modifications; plans for their removal and mitigation are described in the site's management documents (See Section 5). The immediate surroundings and adjacent, terraced riparian corridor of Raccoon Creek provide an appropriately evocative setting. Given the nearly intact, exceptionally well-maintained, original fabric of the walls and mounds, there is the potential for the site to yield significant additional information. The Octagon Earthworks have escaped all but very minor adverse effects from their past agricultural, military, and recreational uses. There are no significant threats to their integrity today.

The significance of Newark's Great Circle Earthworks is well expressed by the extant elements included within the proposed Boundary. These include the circular earthen wall with its grand gateway and accompanying ditch, the restored Eagle Mound at its center, and the large borrow pits adjacent to the southeast. Two restored sections of the Newark complex's outer perimeter wall are also included in the Boundary, within the adjoining park. The 1930s restorations of portions of the wall, and small repairs of isolated damage from its use as an entertainment venue, were based on meticulous documentation; the vast majority of the standing forms are original. The small museum and the paved sidewalks and southeastern parking lot that are within the Boundary are well clear of having any impact on the earthworks themselves.

The park setting offers a peaceful remove from the surrounding residential and commercial districts. The high archaeological research value of the substantially intact circular wall and ditch has been demonstrated by a limited excavation in 1992. Newark's Great Circle Earthworks have escaped all but very minor adverse effects from their past military and recreational uses. There are no significant threats to their integrity today.

All elements necessary to express the significance of the Hopeton Earthworks are included within the proposed Boundary. These include the remains of the large circle and square, and their associated mounds and gateways. Despite almost 200 years of cultivation, most portions of the earthworks retain significant topographic relief and are traceable on the ground, while the setting powerfully evokes the vastness of Hopewell sacred landscape space. Recent geophysical investigations, intensive controlled surface collections, and limited excavations have documented the presence of an extensive, intact archaeological record. These data have revealed the mostly intact and untouched condition of the bases of the earthwork walls and ditches, and evidence of the giant woodhenge corresponding to the large circle.

All known remains of the parallel walls to the west of the main earthworks are protected within the Boundary. There is the potential for the site to yield significant additional information. The Hopeton Earthworks have escaped all but minor adverse effects from residential and commercial development, and there are no significant threats to their integrity.

Mound City contains within its Boundary all elements necessary to support the Outstanding Universal Value. These include the restored earthen wall, the 23 restored mounds, the eight exterior borrow pits, and the site's close relationship to the river and the surrounding forest. Restorations carried out in the 1920s, and corrected in the 1960s and 1970s, reflect the best practices of their respective times, based on archaeological knowledge gained and refined over more than 150 years. The artifacts associated with the site, many of which are shown in its visitor center, are among the finest expressions of the uniquely Hopewell acquisition of exotic raw materials drawn from distant lands, and the creation and ritual use of exquisite, symbolically charged objects.

The modern visitor center stands in the Buffer Zone well apart from the earthwork proper and does not impinge on its integrity. The prominent range of hills visible in season to the east is protected as a State Park beyond the Buffer Zone. Given the intact, sub-mound strata and other in-situ resources at Mound City, there is the potential for the site to yield significant additional information. The site faces no further significant threats to its integrity.

All elements of the High Bank Works necessary to express the Outstanding Universal Value are included within the proposed Boundary. Despite nearly two centuries of cultivation, the earthworks retain some topographic relief, and their remains are also clearly visible in LiDAR topographic data and in aerial photographs. In particular, high resolution magnetometry data gathered since the turn of this century reveal the extent, precision, and underground integrity of the High Bank Works, and also have facilitated the confirmation of the site's important astronomical alignments. The geophysical surveys have also shown that other valuable archaeological resources survive within the Boundary, such as structure walls, floors, and cooking pits; there is the potential for the site to yield significant additional information.

The site effectively conveys the vast spatiality of Hopewell landscape. Apart from an 1880s farm lane crossing the site, and the small farmstead along its far western margin (outside the Boundary but in the Buffer Zone), the High Bank Works have escaped all but minor impacts from development. The fact that a small arc of the large circle, of unknown condition, passes outside the Boundary does not significantly compromise the site's overall archaeological integrity. (This parcel is within the Buffer Zone and the authorized boundary of the National Park lands, and will be acquired when the opportunity arises.) There are no current significant threats to the integrity of the High Bank Works.

All elements of the Hopewell Mound Group that are necessary to express the Outstanding Universal Value are included within the proposed Boundary. These elements include remnants of earthen walls, gateways, mounds, ditches, earthen and timber rings, and water features. Even where plowing has greatly reduced the height of earthwork walls and mounds, recent geophysical and archaeological investigations have demonstrated that the bases of the earthwork walls and ditches remain undisturbed in most areas, and that many mound floors remain intact. The recent remote sensing investigations have also revealed many intact, preserved remains of domestic and ceremonial activities in non-mound contexts within the Boundary. The high level of integrity of these preserved features supports the site's ability to bear exceptional testimony to the unique social, economic, and spiritual aspects of the Hopewell culture.

The condition of the southern wall of the Great Enclosure is not well known. It is difficult to access, and has not been investigated archaeologically. It follows the edge of a steep scarp which drops to the lower river terrace, so has been vulnerable to erosion and possible impacts from the 1870s construction of the rail line below. (This topographical condition is the reason for the narrow Buffer Zone along the south edge of the site.)

Two short sections of the southern wall, and a piece of the D-shaped enclosure (no longer visible) lie on parcels that are still privately owned, although within the Buffer Zone and the authorized boundary of the National Park lands. They will be acquired when the opportunity arises. Their current status does not significantly compromise the site's overall archaeological integrity.

The Hopewell Mound Group has escaped all but minor adverse effects from residential and commercial development. The small buildings on the site's southern edge (in the Buffer Zone), the road and adjacent recreational trail, and the three electrical pylons, have not had an appreciable impact on the integrity of the site. The new parking lot was constructed (also in the Buffer Zone) only after extensive archaeological investigation. As at most of these sites, the threats here are not significant – mainly erosion, tree-throw, invasive woody plants, and burrowing animals; these are subject to constant monitoring and adaptive management (See Sections 4 and 6).

All elements necessary to express the significance of the Seip Earthworks are included within the proposed Boundary, including the remnants of earthen walls, mounds, borrow pits, and gateways, plus the restored Seip-Pricer Mound and short northern wall segments. Also intact, despite decades of agricultural degradation, are the below-surface remains of the great majority of the site's wall and mound construction. High resolution remote sensing data from 2015-17 reveal the extent and precision of Seip's geometric design through its underground integrity even where features are invisible at the surface. These data also indicate other valuable archaeological resources within the enclosures, including traces of post circles and building plans. The setting of the Seip Earthworks is an exceptionally beautiful, enclosed, generally agricultural valley landscape.

A small 1850s house stands on the large circle's northern perimeter, but does not significantly compromise the site's overall archaeological integrity. The western portion of the small circle, of unknown condition, crosses a privately-owned parcel (in the Buffer Zone); legislation authorizes acquisition of this parcel when the opportunity arises. The parking lot, access road, and small picnic shelter in the Buffer Zone do not impinge on the earthwork proper or the visual qualities of the site. There is the potential for the site to yield significant additional information, and there are no significant threats to its integrity.

All elements of the Fort Ancient Earthworks necessary to express the Outstanding Universal Value are included within the proposed Boundary. These include the walls, gateways, and ponding areas surrounding the site, the mounds, crescents, and pavements of the interior, and the Twin Mounds standing just outside to the northeast. The setting of Fort Ancient is a nearly pristine natural landscape of steep, forested hillsides and ravines, opening occasionally to distant vistas. Remains with archaeological value are substantial, given the mostly intact and untouched condition of these architectural features, and the entire interior of the enclosure, as well as the adjacent terraces, hillsides, and ravines within the Buffer Zone. These remains include portions of the previously investigated Moorehead Circle, the four restored stone-surfaced mounds, and many intact stone rings and circles lying beneath their new, protective, stone surfaces.

The two phases of construction of the present museum impacted some archaeological resources, although thorough investigations and documentation of the majority of its footprint have provided important evidence of Hopewell-era dwellings. Roads dating back to the early 1800s have resulted in the gradual widening and reinforcement of gateways 72 and 84, and the Great Gateway. Given the scope and complexity of the earthwork as a whole, these interventions are very minor, and do not undermine its Outstanding Universal Value.

The nearly intact, original fabric of all of Fort Ancient's features provides excellent potential for the site to yield significant additional information. The principal threat to the integrity of Fort Ancient is the erosion of its steep exterior slopes. This situation is continuously monitored by the Ohio History Connection, in order to minimize damage to the site. (See Sections 5 and 6.)

Statement of Authenticity

The ensemble of the Hopewell Ceremonial Earthworks conveys its Outstanding Universal Value by way of two semi-distinct types of authenticity, specific to these sites' dual nature as both architectural works and archaeological sites. Their architectural authenticity is present in their intact or restored forms, their spatial and material experiences, and their overall landscape settings. Their archaeological authenticity is present via intact, in-situ, material evidence of their construction, and of the lifeways and activities of their builders. The latter ensures the sites' continuing research potential, and also includes the associated artifacts and collections that give such eloquent testimony to the culture's skillful artistry, influential interactions, and ceremonial rituals.

The Outstanding Universal Value of the Hopewell Ceremonial Earthworks is expressed through their authenticity of form and design, materials and substance, location and setting, and spirit and feeling. General statements for each of these attributes are followed, below, by relevant details for each component.

Authenticity of Form & Design

The form and design of all of the Hopewell Ceremonial Earthworks remain essentially as they were created by their builders between 16 and 20 centuries ago. Although agricultural degradation during the decades prior to the preservation of four of the sites have reduced their architectural presence substantially, the positions and design intentions of the earthen walls and other features remain clear to both excavation and geophysical imaging; only small fragments are lost entirely. Restorations at several of the sites (two of them significant) have returned the form of mounds and walls to their original dimensions, according to the foremost research and techniques available at the time.

Authenticity of Materials & Substance

The built fabric, the materials and substance, of the Hopewell Ceremonial Earthworks are the original, authentic work created during the fluorescence of the Hopewell culture. As is the case with form and design, agricultural degradation and documented restorations account for some limited exceptions. Although the form and design of the four most degraded of sites are less architecturally apparent, their original material and substance are intact to a considerably greater degree as archaeological remains.

Authenticity of Location & Setting

Each of the Hopewell Ceremonial Earthworks remains in its unquestionably authentic, original location and setting. The authenticity of each site's wider visual context is noted below; in no case do conditions in these larger settings significantly undermine the attributes of Outstanding Universal Value.

Authenticity of Spirit & Feeling

Spirit and feeling are powerful aspects of the Hopewell Ceremonial Earthworks. They present an architecture like no other, and their testimony to an enigmatic ancient culture has strong spiritual and emotional dimensions that underscore their Outstanding Universal Value. The sites in the series were selected in part for their effectiveness in conveying these profound and intensely moving experiences.

The overwhelming scope, beauty, and precision of the components of the series remain deeply impressive to the visitor. These experiential impacts are conveyed effectively by their form and presentation, by the almost complete absence of intruding structures, and in most cases by their open agricultural, wooded, parklike, and/or riverside settings. The feeling of the sites is deepened by interpretations that convey the precision and complexity of their forms and alignments, their original sacred and ceremonial functions, and the knowledge and labor that these ancient people invested in their construction.

Indigenous Authenticity of the Hopewell Ceremonial Earthworks

The spirit and feeling of the Hopewell Ceremonial Earthworks are significantly enhanced by the fact that many modern-day American Indian people regard them as authentic and sacred embodiments of the legacies and spirits of their ancestors. Anecdotal evidence records that tribes in Ohio at the time of European contact revered the earthworks, even without claiming to be their builders. In the past two decades, as more American Indians have visited the sites and become involved in interpretive and management consultations (See Section 2.b, and Section 5), most have attested to the palpable sense of the sacred that emanates from these astonishing monuments. Insights they have shared from their current tribal traditions offer compelling enrichments to the spiritual power of these places, and to our understandings of the lives and beliefs of their builders.

Though they lack any known affiliation with a specific modern tribe, the architecture and associated artifacts from these sites are clearly evocative of themes that continue to saturate the "Eastern Woodland" tradition—tribes including the Shawnee, Delaware, Miami, Ottawa, Wyandotte, Seneca-Cayuga, and Osage, among others. These tribes, now located in other states, have supported and participated in the preparation of this Nomination, and see immense value in the prospect of UNESCO World Heritage inscription for these

distinguished American Indian achievements. In the words of Chief Glenna J. Wallace of the Eastern Shawnee Tribe of Oklahoma: *"My people, my ancestors, treasured these mounds. Perhaps they did not build them, but they loved them, protected them, revered them. They knew their importance, and these earthworks were sacred to them… (Upon seeing the earthworks) my reaction at first was both amazement and awe. I have experienced the Pyramids, the catacombs, the Great Wall, Stonehenge. The Newark Earthworks are every bit as impressive as all of these. And they are in Ohio, where my people lived before removal. And they were built by ancestors of American Indians."*

Specific factors relevant to the authenticity of the individual nominated components are summarized on the following pages:

Fig. 3-**2** Octagon Earthworks, the parallel-walled avenue looking northeast towards the Octagon and one of its gateway mounds. (Photo by Bradley T. Lepper)

The *form and design* of the Octagon Earthworks have been affected by only two notable changes. The first was an extension of one of the walls of the Octagon's northwestern apex by 9 meters during an otherwise minor restoration in 1910; the second was the rebuilding of a 30-meter section of the Observatory Circle during the construction of the adjacent golf club building in 1963. Otherwise, within and near the enclosures, only very minor interventions to facilitate golfing (irrigation lines, elevated tees, sand bunkers, asphalt paths, a maintenance shed) have impacted the form and design of the site's monumental architecture; plans for their removal are described in the site's Management Plan and Addendum.

The only portions of the Octagon Earthworks that are not the original, authentic *material and substance* are in two minor restorations mentioned above. The overwhelming volume of the enclosure walls and mounds are the well-preserved, original built fabric.

The *location and setting* of the Octagon Earthworks is a preserved park setting, where a ring of trees screens views of the low-density, small-scale houses that surround it on two sides, and of the hospital to the southwest. The site's northern edge is created by the steep riparian corridor of Raccoon Creek, remaining very much as it would have been at the time the earthworks were built.

The *spirit and feeling* of the Octagon Earthworks are dominated by its enormous scale, formal majesty, and geometric precision, which are readily apparent even to casual visitors. Here is where the typically Hopewell parallel-walled avenues and geometric wall-gateway designs may be most fully and directly experienced, and where the awe and wonder of an ancient society's mastery of complex astronomical patterns may be most readily felt.

The Great Circle Earthworks sustained modest damage during its use as a fairgrounds and amusement park, yet its form and design were meticulously repaired in the 1930s. Nineteenth century intrusions on the earthwork itself were quite limited, though the level interior and the surrounding park were more extensively disturbed by the construction of fairgrounds facilities. The restoration conformed to measurements taken in the 1840s, and as a result the Great Circle's *form and design* stand today in a remarkably intact and authentic condition.

The *materials and substance* of the Great Circle Earthworks are also authentic and original in very nearly their entirety. The exceptions are the varying amounts of soil (generally less than a meter) added to sections of the circular embankment to restore it to its mid-nineteenth-century form; the rebuilding of a small section of the embankment wall removed by an excavation trench in 1992; and the restoration of the Eagle Mound following the research excavation there in 1928.

The Great Circle Earthworks' *location and setting* is in a park, where a visual buffer of mature trees helps mask the low-density, small-scale houses that surround it on three sides, and the road and low-scale commercial development to the southeast.

3.–**3** Monumental gateway of the Great Circle Earthworks from the north.

The Great Circle Earthworks convey an authentic *spirit and feeling*, offering visitors the largest and best-preserved geometric landscape space in the series. The feeling of vastness in the enclosure, almost too large to see across, is enhanced at close range by the perfect continuity of the wall's slope with the interior ditch. The Great Circle's high, symmetrical gateway is the most visually dramatic architectural feature of any surviving Hopewell earthwork.

The *form and design* of the Hopeton Earthworks experienced some architectural degradation prior to their acquisition by the National Park Service in the 1980s, entirely as a result of agriculture. Yet the main earthwork forms of the square and circle are present in subtle relief, and are documented in sub-surface archaeological remains. Their presence and forms are detected in geophysical data, LiDAR topographic mapping, and aerial imagery. The form and design of the site is vividly portrayed today by planting and mowing treatments derived from those data.

The authentic *materials and substance* (original soils) of the Hopeton Earthworks remain intact, although that of the upper parts of the walls are now spread broadly across the ground. Excavations and remote sensing surveys since the early 2000s have revealed that essentially no changes have occurred to the original materials and substance of the lower portions of the walls so meticulously constructed nearly 2,000 years ago.

The broad, level outwash terraces of the Scioto River valley provide an authentic *location and setting* for the Hopeton Earthworks, with the river's riparian corridors mainly intact and vistas of the defining hills beyond still prominent. Despite the presence of a nearby gravel quarry, and a few distant buildings, the overall character of the landscape setting remains much as it was in antiquity.

The Hopeton Earthworks allow visitors to envision, across a huge, open vista, the *spirit and feeling* of the Hopewell cultural landscape. From an elevated wayside, the enclosures (clarified by differential mowing) are visible against a nearly pristine, wide-open backdrop of distant hills, offering the finest presentation of the spatiality of these geometric works in their ancient valley settings.

3.–**4** Mound City from its western enclosing wall, showing Mounds 7 and 3, and Mount Logan in the distance.

The present *form and design* of Mound City is the result of a restoration after the site's use as an army camp during the first World War. The mounds and walls were carefully restored in the 1920s, based on contemporary archaeological evidence as well as mid-nineteenth-century documentation. Those restorations were, in turn, meticulously researched and adjusted in the 1960s and 1970s.

Careful archaeological surveys have informed the reconstructions of Mound City's earthen architecture, also confirming that the authentic *materials and substance* of the original mound floors and earthwork foundations, with their evidence of ritual and ceremonial activities and structures, remain intact at the site.

The *location and setting* of Mound City is an impeccably maintained, monumental forest clearing. The view of the earthworks from the visitor center is perhaps the most perfectly iconic from the entire series; the surrounding trees evoke the "woodland" context of this Middle Woodland culture. The site's relationship to the adjacent river is preserved within the Boundary. In winter, the distinctive profile of the Logan Range appears through bare trees, forming the astronomically significant eastern horizon.

Mound City is the most readily graspable of the earthworks, due to its concentration of forms and relatively small size. Its authentic *spirit and feeling* is especially vivid – the sacred aura of a clustered Hopewell necropolis, of which it is the only surviving example. The surrounding forest creates a perfectly bounded enclave, where a quiet sense of reverential antiquity pervades; the gently swelling earthen forms offer an eternal image of communal identity and peaceful rest.

The High Bank Works, like Hopeton, underwent significant architectural degradation prior to its preservation in the 1980s. Yet the sub-surface precision of the site's *form and design* remains almost entirely intact, as revealed by geophysical data. The unknown condition of the southwestern arc of the circle (outside the Boundary but in the Buffer Zone) does not compromise the expression of the scope of the overall circular and octagonal forms. The site's geometrical and astronomical precision are still apparent and contribute to the Outstanding Universal Value of the series.

Excavations and magnetic data at the High Bank Works since 2002 have revealed that essentially no changes have occurred to the *materials and substance* of the base layers of wall construction, although the soils comprising their original profiles have been spread out across the ground. Evidence remains to allow the clear identification of the positions, widths, and compositions of the walls.

The *location and setting* of the High Bank Works is very similar to that at Hopeton. Expansive vistas across level terraces, along the river's huge valley and riparian corridors, and out to the distant hillsides beyond, continue to define the setting of the earthworks authentically, much as it would have been for its ancient builders.

Like Hopeton, the High Bank Works present a *spirit and feeling* deriving from these vast, open landscapes. Although the earthen architecture is not visually distinct here, the large open space of the site can convey a sense of Hopewell spatial conceptions, and evoke the wide horizons toward which the ancient builders calibrated their astronomical and geographical alignments.

3.-**5** High Bank Works, looking out over the space of its octagonal enclosure, from the east.

3.-**6** The huge, open, central area of Hopewell Mound Group, with Mound 25 on the left, the wooded moraine on the right.

The Hopewell Mound Group retains most key aspects of its *form and design*. The architecture of the northern walls and ditches remains intact, preserved in woods and pasture that were never subjected to agricultural plowing. The remainder of the mound-and-earthwork complex has seen agricultural activity since the early nineteenth century, and possibly some erosion at its southern edge. Nonetheless, the western and eastern walls of the Great Enclosure are easily traced on the ground, along with remnants of at least five (including the largest) mounds. The huge bulk of Mound 25 is unmistakable today, even though the soil replaced after its excavations was not a dimensional restoration. Magnetic data and excavations since 2002 have revealed the authentic form and design of substantially unchanged subsurface features, notably the giant woodhenge, the exact positions of surviving walls, and as-yet-enigmatic details of the base of Mound 25. Today the positions of the walls, and several mounds, are presented authentically to visitors as a planting and mowing scheme matched to the geophysical data.

Excavations at the Hopewell Mound Group in the 1890s and 1920s confirmed that the *materials and substance* of most of the mound floors remain, despite their surface degradation. Authentic materials and substance also survive in a large majority of the enclosure walls, apparent in full form along the northern bluff and in geophysical evidence of their intact base layers in most other areas.

The *location and setting* of the Hopewell Mound Group includes both the wooded hillsides and the riparian riverbanks so authentically associated with Hopewell spatiality. Here, they are immediately adjacent to, or incorporated into, the earthwork itself. The few modern structures, including the electric pylons, do not significantly detract from the huge scale and overall grandeur of this enclosed valley setting.

Visitors to the Hopewell Mound Group are often astonished by the huge area enclosed by these earthen walls and ditches, and the sheer volume of soil and depth of care expended here to commemorate important events and individuals. Equally important to the site's *spirit and feeling* is the realization that this quiet valley became the repository of the largest quantity of exotic materials, and the most exquisitely crafted ceremonial artifacts, ever assembled by ancient Americans.

The *form and design* of the Seip Earthworks are well indicated by the short, visible sections of the large circular enclosure, framing an iconic vista toward the large Seip-Pricer Mound. Both were meticulously restored to their 1840s dimensions following the latter's excavation in the 1920s. The somewhat flattened bulk of the Seip-Conjoined Mound is also readily visible. Most of the enclosing forms of Seip's three-part geometry are detectable in either LiDAR or remote sensing data, or both, and are now also presented with a planting and mowing scheme. Between the restorations, and the extensive geophysical evidence of the site's intact underground features, the form and design of Seip Earthworks remains substantially authentic despite decades of plowing.

3.-**7** The Seip-Pricer mound seen from the vicinity of the restored northern wall.

The authentic *materials and substance* of the Seip Earthworks are revealed in archaeological records of the intact floors of its two major mounds, and of a set of buildings near the northern rim of the large circle. The geophysical surveys of 2012-2017 show that many other subsurface features remain at Seip, both smaller works within the enclosure and the precise base layers of a large majority of the enclosing walls.

The *location and setting* of the Seip Earthworks also resembles that at Hopeton and High Bank, although the space of the valley is more intimately defined here by prominent wooded hillsides. The nearby farmsteads and the modern school across Dill Road do not significantly intrude on the authenticity of the earthworks' river terrace setting.

The pathway framed by wall segments at the Seip Earthworks preserves the *spirit and feeling* of a dramatic ceremonial approach. Ahead is the massive form of one of the largest earthen burial mounds in North America, set against the prominent hills beyond. The rest of the site's huge, three-lobed, enclosing geometry is conveyed by the present planting and mowing program, while the rural setting in the beautiful Paint Creek Valley offers another variation on the vastness of Hopewell spatial conceptions.

The *form and design* of the walls and mounds at Fort Ancient remain remarkably intact, due to its early date of preservation. The principal exceptions are the roads through the site, and their later widening, which produced minor modifications to two of the North Fort's gateways and to the Great Gateway. In addition, the two phases of museum construction exposed, documented, and then destroyed the postholes of a small cluster of dwellings; these were of interest but not essential to the site's key attributes. The 1930s installation of concrete drains in many of the interior ponding areas now prevents them from functioning as intended. The stone mounds and rings in the North and Middle Forts have been given protective stone coverings, replicating and protecting their original fabric. These changes do not significantly compromise the overwhelming volume or the complex detail of the site's authentic form and design.

Fort Ancient preserves its authentic *materials and substance* to a truly remarkable degree. These include not only the earth and stone of still-intact wall and gateway constructions, but evidence of vast landscape modifications like the removal of hectares of topsoil, the lining of ponds, and the artificial extension of the isthmus of the Middle Fort. Geophysical data reveal that, despite being disturbed over a large area in the nineteenth century by a shallow plow zone, a rich subsurface archaeology is very well preserved, offering an excellent record of the use of this monumental ceremonial center.

The *location and setting* of Fort Ancient remains pristine. Steep, densely-wooded ravines define its northern and eastern edges, while the adjacent gorge of the Little Miami River to the west and south retains its primordial, densely-forested character. Beyond the Twin Mounds to the northeast there is some low-density residential development, but at a distance sufficient to have almost no effect on the authenticity of this rural setting.

3.-**8** The well-preserved and still-forested walls of Fort Ancient, near Gate 31.

The pristine setting, and the seemingly endless, intricate variety of walls, gateways, and ponds at Fort Ancient present a *spirit and feeling* completely unique among the Hopewell Ceremonial Earthworks. The sheer volume and complexity of the undertaking induces wonder at the nearly unimaginable effort involved in creating these sacred sites. Several well-preserved ponds provide the best surviving evocations of the interactions among the Beneath, Middle, and Above Worlds of American Indian sacred cosmology. The site's pristine forested setting amid steep and densely forested ravines creates an aura of timelessness and respite from the modern world.

Protection & Management Requirements

The framework for the protection and management of the Hopewell Ceremonial Earthworks contains a broad set of laws promulgated by federal, state, and local governments. The two owner/managing agencies—the U. S. National Park Service and the Ohio History Connection—are subject to these laws and also maintain their own monitoring and management plans, as well as systems for coordinating their efforts across the property as a whole.

The National Park Service, an agency of the federal government, owns and manages all of the property within the Hopewell Culture National Historical Park, including five of the nominated components: Hopeton, Mound City, High Bank, Hopewell, and Seip. Fort Ancient is owned by the State of Ohio, while the Octagon and Great Circle Earthworks

are owned by the Ohio History Connection; this private non-profit entity is chartered by the state and manages all three of these sites in the public trust. The small portions of the 561.8-hectare Buffer Zone not owned by the Ohio History Connection or by the US National Park Service lie within either the authorized boundary of the National Park (and are thus subject to use and management restrictions) or within restricted zoning classifications enacted by the cities of Newark and Heath.

The Hopewell Ceremonial Earthworks are protected at the federal level by the laws that created the National Historical Park, and a suite of other federal laws further supporting the protection of the earthworks, their archaeological resources, and the rights of Indigenous people. These protecting laws are enumerated in Section 5.b, and include requirements for coordination and review by the State Historic Preservation Office of any action that could affect the nominated Property with respect to its archaeological and cultural significance, thus protecting the attributes sustaining its Outstanding Universal Value. At the state level, the three components managed by the Ohio History Connection are protected through their designation as State Memorials, as well as by the overarching provisions of the federal laws. In addition, several provisions of the Ohio Revised Code, also detailed in Section 5.b., protect historic and archaeological sites from unauthorized excavation or damage. The Ohio History Connection also employs a policy regarding its relations to American Indian tribal nations.

The National Park Service and the Ohio History Connection maintain autonomy over their respective components, but work cooperatively for the Property's management through the World Heritage Ohio Executive Committee, which includes representation from the two owner agencies and other key stakeholders. The Committee coordinates across all the components of the serial Property, its work and deliberations respecting the laws and detailed plans specific to the individual agencies and sites. A Cooperative Agreement between the two managing agencies provides a formal mechanism by which they work together.

The management of the five components within Hopewell Culture National Historical Park is directed by its General Management Plan and Environmental Assessment (1997) and its Cultural Landscape Report and Environmental Assessment (2016), together providing detailed direction for preservation, stewardship, and visitor experience objectives. The management of the two Newark components is directed by the Ohio History Connection's Historic Site Management Plan for Newark Earthworks State Memorial (2003), and its 2021 Addendum. The management of Fort Ancient is directed by its Historic Site Management Plan of 2021. All three of these plans provide direction for preservation, access, visitor experience, education, research, and outreach.

The Hopewell Ceremonial Earthworks face few if any serious threats, now that they are protected on public lands in generally stable surroundings. Monitoring protocols are in place to ensure that impacts from erosion, as well as the more modest risks of tree-falls, burrowing animals, and impacts from visitation will not jeopardize the attributes sustaining the Property's Outstanding Universal Value.

Comparative Analysis

This comparative analysis shows that, while there are multiple global examples of monumental works by *ancient, mixed-economy, non-urban cultures*, these particular works of the Hopewell culture fill a unique place in their physical expression. The approach will consider other Hopewell, North American, and global examples, and will thereby demonstrate that the works nominated in this series constitute the finest and most representative surviving expressions of the distinctive genius (criterion i) and cultural flowering (criterion iii) of the Hopewell culture.

Three Comparative Contexts

This analysis proceeds in three steps. First, it identifies all significant properties, including all major examples of earthworks, associated with the Hopewell culture in eastern North America. A comparison of the nominated sites within this field establishes that *this series of eight earthworks is the complete and necessary collection to illustrate the Outstanding Universal Value.*

Second, the analysis examines monumental works from other Indigenous cultural contexts in North America, from a variety of periods and regions. The comparisons with the attributes of the nominated sites within these contexts will establish *the distinctive character of Hopewell achievement in the North American geographic and chronological contexts.*

The third and final comparative context is global. It compares this series with worldwide examples of other monumental/astronomical works by ancient, mixed-economy, non-urban cultures. This will establish that the Hopewell Ceremonial Earthworks are a unique and significant addition to the World Heritage List, that they offer the clearest and most exceptional testimony to the Outstanding Universal Value attributes, and that no other properties have a similar combination of values and attributes.

Comparative Attributes

Throughout these comparisons, the Outstanding Universal Value of the series will be defined through the specific attributes described above in Section 3.1.b, applied in the consideration of the other properties in the three comparative contexts. Of these four attributes, two are associated with each of the criteria being used. Comparisons will first examine how works manifest human genius in (i.A) sophisticated geometry and (i.B) astronomical precision; and second, how they give testimony to the elaborate ceremonialism (iii.A) of a non-hierarchical, non-urban culture, and (iii.B) a nearly continent-wide interaction and artistic sphere. These four attributes are further summarized below.

Comparisons are made to all four attributes but, in general, attributes related to criterion (i) will have more application to the global comparisons, while attributes related to criterion (iii) will have more of a role in the Hopewell and North American comparisons. Properties with comparable values and attributes to the Hopewell Ceremonial Earthworks will also be compared with respect to each site's authenticity and integrity.

The series of architectural monuments that comprise the Hopewell Ceremonial Earthworks include the intact earthworks, archaeologically detectable remnants of degraded earthworks, archaeological resources related to the earthworks and their associated timber structures, and associated landscape features. Together these eight sites are the pinnacle of earthen architecture produced by the Hopewell culture and represent the full range of its characteristic forms and techniques.

There are multiple global examples of societies at various levels of socio-cultural complexity that built monumental earthworks; however, those of the Hopewell culture represent a unique achievement. In order to establish a list of comparable properties, the key physical attributes that sustain the Outstanding Universal Value of the Hopewell Ceremonial Earthworks will be used to provide an explicit basis for comparison. These four attributes were introduced in Section 3.1.b and are further summarized as follows:

Geometry

First, the forms of many of these earthworks incorporate a sophisticated understanding of geometry that is highly unusual for non-literate societies. Hopewell architects designed and built earthworks in precise geometric shapes, and with complex geometric interrelationships. They are generally of vast dimensions and replicated accurately across a wide geographic area. This indicates that there was a widespread architectural tradition that utilized a standard unit of measure, precise surveying methods, and standardized design principles. This geometric precision has two specific characteristics which, to be fully comparable, other properties must possess:

Astronomy

Second, Hopewell architects incorporated into most of these earthworks highly accurate alignments to pivotal moments in the lunar and solar cycles, such as the solstice sunrises and the far more complex patterns in the movement of the moonrise. These alignments usually correspond with major points or axes of the works, and with great precision. This deliberate marking of astronomical events also links related sites together over great distances. This culture's shared knowledge of these complex cosmic rhythms, as well as its advanced skills in applied geometry, combine with evidence of elaborate ritual dramas at these sites, attesting to the powerfully ceremonial nature of the architecture. This astronomical knowledge has two specific characteristics which, to be fully comparable, other properties must possess:

Ceremonialism

Third, the Hopewell societies that created this elaborate ceremonial architecture operated at a level of socio-cultural complexity that does not fit easily into traditional anthropological categories. The population lived in small and widely dispersed settlements rather than in large urban centers. Their economy was a mixed, or balanced, combination hunting, fishing, and gathering, together with low-level cultivation of crops. Their social organization was highly egalitarian with no evidence for an inherited social hierarchy, or other characteristics of early state-level societies. Monumental public works of this scale and sophistication, to be comparable, would need to be associated with:

Interaction

Fourth, the Hopewell socio-religious movement participated in a network of interaction that spanned much of North America, evident most directly in rare materials obtained from distant sources, but also in shared ritual practices. Beautiful artifacts made from these materials were likely ceremonial or pilgrimage offerings, or decommissioned regalia. The high concentrations of these objects mark these earthwork centers as the primary nodes in this interaction sphere, which not only facilitated the acquisition of these spiritually potent materials, but also served to disseminate other elements of Hopewell culture well beyond its middle Ohio Valley heartland. Comparable monuments in other cultural contexts would need to be:

In addition to these four attributes, comparable properties will be assessed for their integrity and authenticity—the extent to which the principal features of the architecture remain substantially intact and/or clearly detectable by archaeological methods.

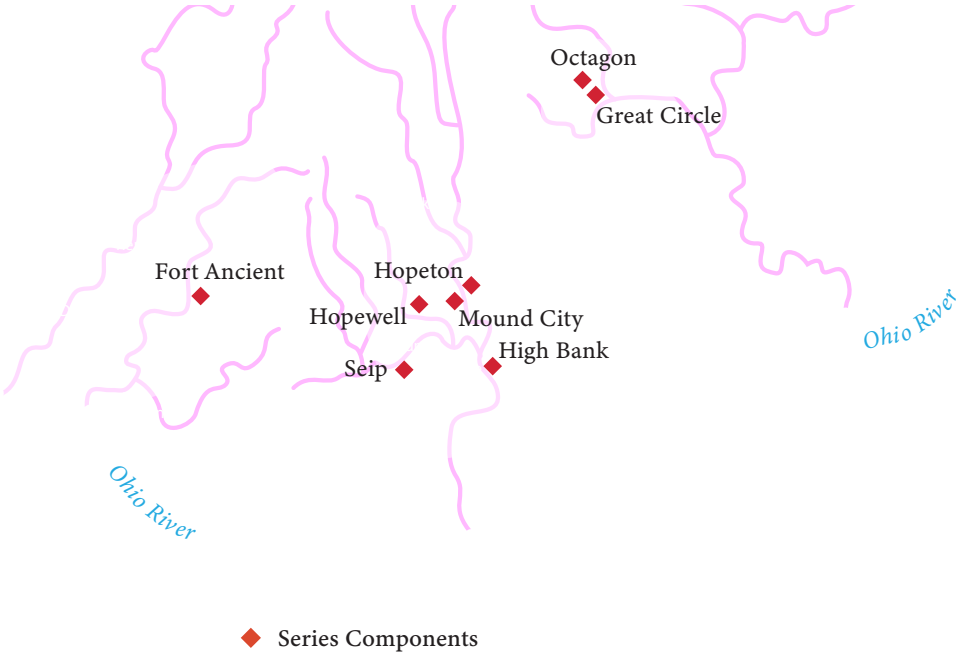
This first stage of the Comparative Analysis will demonstrate that this set of eight sites includes the most outstanding examples of this cultural tradition and its architecture, and that together they encompass the full range of forms within this tradition. This review is based on a survey of primary sources to identify other Hopewell sites in the middle Ohio River Valley region, and throughout the interaction sphere, with attributes and features that might express the Outstanding Universal Value of the Hopewell Ceremonial Earthworks. Hopewell is defined here as a set of distinctive cultural practices which, although influential throughout much of the continent between 1 and 400 CE, were concentrated and developed to their most sophisticated level in what is now southern and central Ohio (now referred to as Ohio Hopewell; see also Section 2.b).

The sites taken up here for comparison include other Hopewell sites in the culture's Ohio Valley heartland (in Ohio proper, and in east-central Indiana), as well as those from other regional expressions of Hopewell ceremonial activity, including Illinois (Havana Hopewell) and the lower Wabash and Ohio river region (Mann phase Hopewell). Other expressions at even farther distances such as the mid-south (Tennessee) and deep south (Florida) have also been compared.

The Ohio Hopewell sites in this series are the most complex and flamboyant expressions of the broader, pan-eastern Hopewell tradition—unprecedented and unequaled in scale and complexity. The vast geometric earthwork enclosures at the Great Circle Earthworks, Octagon Earthworks, Seip Earthworks, Hopewell Mound Group, Hopeton Earthworks, and High Bank Works have no peers elsewhere in eastern North America in terms of scale, architectural complexity, labor investment, or the sophisticated understandings of geometry and astronomy that are incorporated into the architecture. Similarly, no other Hopewell hilltop enclosure approaches Fort Ancient's imposing scale, or evidences such complex geometric regularities and astronomical alignments. Finally, the quantity, quality, and diversity of the materials and artifacts from the nominated sites is unmatched elsewhere in the Hopewell world—both the finest expressions of artistry and craft, and the richest repositories of other cultural remains.

3.-**9** Locations of sites outside of Ohio included in the Hopewell Comparative Analysis.

3.-**10** Map of Ohio with all major, known, extant Hopewell earthworks identified, highlighting the nominated sites and those treated in this Comparative Analysis.



	Geometric Precision	Astronomical Alignments	Elaborate Ceremonialism	Interaction & Artistry	Integrity & Authenticity
	4	4	2	1	4
	4	1	2	2	4
	4	2	3	2	3
	2	3	4	3	4
	4	4	3	1	3
	4	1	4	4	3
	4	2	4	4	3
	2	3	3	2	4
Fort Hill	0	0	1	2	4
Marietta Earthworks	1	2	1	0	1
Spruce Hill	0	0	0	1	2
Pollock Works	0	0	2	0	1
Miami Fort	0	0	1	0	3
Fortified Hill	0	0	0	0	3
Liberty Harness Works	4	1	4	3	1
Portsmouth Earthworks	2	0	1	1	1
Baum Earthworks	4	1	0	0	2
Cedar Bank Works	2	0	0	0	2
Glenford Fort	0	0	2	0	3
Anderson Mounds	2	1	2	2	3
Mann Site	3	0	3	3	2
Pinson Mounds	1	1	2	4	3
Old Stone Fort	0	1	0	1	4
Marksville Mounds	2	1	2	3	3
Kolomoki	0	0	3	2	4
Fort Center	1	0	3	0	4

4 Excellent
3 Good
2 Fair
1 Slight
0 Absent or Undocumented

Fort Hill

Located in Highland County, Ohio, Fort Hill is one of the best-preserved examples in Ohio of a monumental hilltop enclosure. A 2.4-kilometer wall made of earth and stone, with more than 30 gateways, winds around a prominent hilltop. A ditch inside the wall was the source of most of the building material. Measured from the bottom of the ditch to the top of the wall, the earthwork ranges from two to five meters in height and encloses about 16.2 hectares—less than 1/2 that of Fort Ancient. Limited excavations since the 1950s have shed light on the nature and sequence of the enclosure's construction, and revealed evidence of Hopewell occupation and ceremonialism in the adjacent valleys. The site and its immediate surrounding were never cleared for agriculture so they display excellent authenticity and integrity, and are protected within a 485-hectare nature preserve.

Fort Hill resembles Fort Ancient in several respects and is well preserved, yet the latter is much larger and more complex, incorporates examples of Hopewell geometrical and astronomical knowledge, and boasts a richer and more extensive record of research and documentation.

Marietta Earthworks

Fragments of the Marietta Earthworks survive among the streets of the town of Marietta, in Washington County, Ohio. Originally one of the largest Hopewell mound and earthwork centers, this sprawling complex included two large, rectangular enclosures (of 10 and 21 hectares), surrounding four large flat-topped rectangular mounds. A large conical mound and ring (of Adena origin) stood adjacent to one of the rectangles, and a straight "graded way" flanked by embankments extended from the largest square enclosure to the Muskingum River. The town of Marietta was founded on the site in 1788, the first European settlement in the Northwest Territories. But due to the town's growth, only fragments remain: "Quadranaou Mound" and "Conus Mound" retain very good authenticity and integrity, while only scant portions of the graded way or "Sacra Via" remain, now compromised by modern pavement and houses. The alignment is, however, preserved and has been shown to mark the winter solstice sunrise. A public library sits atop another of the flat-topped pyramidal mounds, the "Capitolium Mound." Although early interest in the earthworks meant they were among the first to be investigated by the learned communities of the day, their early loss means that records of field research at the site remain scant and fragmentary.

Now almost entirely destroyed, the Marietta earthworks are unable to compare with the other geometric sites in this nomination. Unlike Newark, for example, which was similarly affected by the growth of a town, Marietta's two surviving components with good integrity (Conus and Quadranaou) do not offer significant contributions to the attributes of Outstanding Universal Value of the Hopewell Ceremonial Earthworks.

Spruce Hill

The Spruce Hill Works, near Chillicothe in Ross County, Ohio, consist of a low, broad heap of un-dressed sandstone enclosing an area of 57 hectares, and following the brow of a prominent, flat-topped plateau overlooking Paint Creek. A series of re-entrant gateways mark the principal access points to the summit, including a set of gateways across the narrow isthmus defining the southern boundary of the enclosure. National Park Service test excavations in 1995–1996 recovered diagnostic Hopewell prismatic bladelets and ceramics in this area, lending support to the conclusion that the enclosure was constructed by Ohio Hopewell populations between about 1–400 CE. Beyond these small scale investigations, the documentary record of professional research at the site is quite limited.

While an instructive example of a hilltop enclosure, Spruce Hill does not have geometric or astronomical properties, and does not provide a significant documentary and research contribution to illuminate the Hopewell culture. Unlike Fort Ancient, its walls are, apart from the gateways, architecturally meager and scarcely traceable.

Pollock Works

The Pollock Works, in Greene County, Ohio, consist of a series of earthen embankments on a high promontory above a tributary of the Little Miami River. They are mainly a series of gateways giving access to a 4.9-hectare plateau otherwise ringed by sheer stone cliffs. More than a decade of careful excavation has revealed a complex construction sequence and chronology, including the construction and burning of a timber palisade.

Compared with Fort Ancient, Pollock is one fifth the size, with very limited architecture, and no geometrical or astronomical properties. Despite good knowledge of its construction, little in the way of an artifactual record of Hopewell art, craft, or occupation, is associated with the site.

Miami Fort

Miami Fort is a Hopewell hilltop enclosure located in a Hamilton County Park west of Cincinnati. It surrounds a high, mostly-flat mesa overlooking the confluence of the Great Miami and the Ohio rivers. The walls are between 0.5 and 3 meters high and enclose an area about one-twelfth the size of Fort Ancient. Several gateways appear to be associated with springs, and possibly constructed ponds. At least some of the interior surfaces of the walls were faced with limestone slabs; along the northern wall there was evidence of a burned timber palisade, as at Pollock.

Although Miami Fort is well preserved and well protected, it is much smaller and less architecturally complex than Fort Ancient, and its forms incorporate no geometrical or astronomical knowledge.

Fortified Hill

Fortified Hill is a hilltop enclosure situated high above the Great Miami River, overlooking a long stretch of the valley near the town of Hamilton, Ohio. This 7.3-hectare earthwork was mapped in 1836, and figures prominently in Squier and Davis's *Ancient Monuments of the Mississippi Valley*. Its most distinctive features are three elaborate gateways, the two smaller of which are well preserved and include internal water features. The property containing most of the hilltop enclosure and two associated burial mounds was recently purchased for preservation by a local nonprofit organization.

Fortified Hill is only about one fifth the size of Fort Ancient, much less elaborate, and lacks any astronomical alignments. While the site's embankments are visible in exaggerated LiDAR data, they are quite low and difficult to follow today.

Liberty (Harness) Earthworks

The Liberty (aka Harness) Earthworks were one of the five "tripartite" mound and earthwork complexes in the Scioto-Paint Creek confluence region in Ross County, Ohio. (Their geometrical properties are described in connection with the Seip Earthworks, see Fig. 2.a-**81**, page 104). Like the other tripartites, the square at Liberty is astronomically aligned, in this case to the equinox sunrise. In and around the geometric enclosures at Liberty were a series of mortuary mounds that attracted substantial archaeological interest in the nineteenth century, extending into the modern period. These have resulted in a rich and detailed documentary record relating to several mounds, and of Hopewell artifacts and cultural practices associated with both ritual and domestic activities. The site is privately owned and still used for agriculture.

Compared to the similar Seip Earthworks, the Liberty Earthworks have much poorer integrity, having been entirely degraded by farming; they are no longer traceable on the ground or visible in aerial imagery.

Portsmouth Earthworks

The Portsmouth Earthworks site is located at the confluence of the Scioto and Ohio rivers. It was originally a sprawling complex of geometric figures (circles, squares and horseshoe-shaped enclosures) on both sides of the Ohio River, linked by long avenues flanked by parallel earthen embankments. Most of the complex was destroyed, before any concerted research efforts, by the growth of the city of Portsmouth. One of the small, horseshoe-shaped enclosures is preserved in a city park, the only publicly accessible remnant remaining.

As at Marietta, only very small fragments of the earthwork complex survive, and the record of field research at the site is scant and fragmentary. Unlike Newark, its surviving component has no attributes that would contribute significantly to the Outstanding Universal Value.

Baum Earthworks

Baum Earthworks is another of the five "tripartite" earthwork complexes in Ross County, Ohio, located about 6 kilometers east of the Seip Earthworks in the Paint Creek Valley. Architecturally, the two form a closely related pair, though Baum lacks the large and small mounds associated with the Seip Earthworks. Little is visible on the ground at Baum, though portions of the earthworks can be detected in LiDAR. The Baum Square is aligned to the winter solstice sunset. Just north of the geometric enclosures at Baum, a flat-topped mound and village site were investigated in the 1890s and early 1900s, and discovered to be the products of a post-Hopewell, Fort Ancient culture occupation; they are unrelated to the Hopewell enclosures. The site remains in private ownership and the current land use is agricultural.

Compared with Seip Earthworks, its near twin, Baum has few visible architectural remains, no associated Hopewell-related artifacts in publicly accessible collections, and no record of field investigations of the Hopewell-era features at the site.

Cedar Bank Works

The Cedar Bank Works, just north of Chillicothe in Ross County, Ohio, consists of an earthen wall and adjacent ditch forming a three-sided rectangular enclosure encompassing about 12.9 hectares (less than 1/3 of the area of Fort Ancient). The western, open side of the enclosure fronts a steep bluff dropping to the Scioto River below. A flat-topped rectangular mound with ramps on the north and south sides lies within the enclosure. Much of the enclosure wall remains in fair condition, though the western portion of the site was severely impacted by railroad construction in the nineteenth century. The site is in private ownership and the current land use is agricultural.

Cedar Bank has no known astronomical properties and much of the site is in a poor state of preservation. There are no professional archaeological investigations of Cedar Bank to shed light on its age or affiliation. Even if further work occurs in the future, its potential to contribute to the Outstanding Universal Value of the Hopewell Ceremonial Earthworks would remain small.

Glenford Fort

Glenford Fort in rural Perry County, Ohio, consists of a prominent stone wall, one to two meters tall, enclosing a hilltop about 1/5 the size of Fort Ancient. Several stone mounds are in the area. The site attracted considerable antiquarian interest in the nineteenth century, but there have been no significant professional investigations in the modern period. One stone mound within the enclosure was excavated by an amateur archaeologist in the 1980s, causing considerable damage. Similarities with other, better-known hilltop enclosures suggest a Hopewell affiliation. The site is currently in private ownership and not publicly accessible.

The extensive use of stone in the architecture here is significant, but even if further study adds to the scant research on the nature, age, and affiliation of the site, Glenford Fort will not compare well to Fort Ancient due to its much smaller area, less prominent architecture, and lack of astronomical or geometrical properties.

Anderson Mounds, Mounds State Park

There are several small complexes of Hopewell-influenced mounds and enclosures in east-central Indiana. Of these, only the Anderson Mounds, in Madison County, Indiana, are both well-preserved and publicly accessible. (The others are the New Castle and Bertsch complexes.) Four enclosures remain at the Anderson group: The Great Mound is a circular ditch and embankment about 1/3 the diameter of Newark's Great Circle, and the Fiddleback Enclosure is a panduriform earthwork about 4% of the area of Mound City. There are two circular earthworks of even smaller dimensions. Solar and stellar alignments have been proposed, but the short sightlines and simple geometries render them imprecise at best. Excavated artifacts and radiocarbon dates document the builders' participation in inter-regional Hopewell interactions.

The Anderson Mounds do not compare favorably in monumental scale, geometric complexity, or astronomical precision with the geometric complexes in this nomination, nor do the artifacts found there add substantially to the expressions of Hopewell culture or interaction associated with Mound City, Hopewell Mound Group, or Seip Earthworks.

The Mann Site & GE Mound

The Mann Site is located near the confluence of the Wabash and Ohio rivers in Posey County, Indiana. This is about 400 kilometers southwest of Fort Ancient, and thus well outside the core regional extent of what archaeology delineates as Ohio Hopewell. Probably the largest and most complex Hopewell site outside of Ohio, it contains two of the five largest Hopewell mounds ever constructed (a third being the nearby but now-destroyed GE Mound). It also includes a square earthen enclosure 310 meters on a side, which shares the same size and design as five Ohio Hopewell earthworks, suggesting a close and sustained relationship. The Mann site is also notable because it contains the largest concentration of Hopewell-period domestic habitation debris anywhere in eastern North America, and, together with the GE Mound, has produced the largest and most diverse assemblage of Hopewell raw materials and artifacts outside of the Ohio region. A small portion of the complex has recently been conserved in State of Indiana ownership, but the vast majority remains in private ownership and agricultural use. The geometric earthworks are entirely plowed down and invisible at ground level, and only remnants of the largest mounds are visible. The GE Mound was destroyed by road construction and looting, and any recovered artifacts were reburied.

The Mann Site presents no evidence for astronomical alignments, and suffers from an unfavorable state of conservation. The substantial collections of materials, artifacts, and domestic debris are not of the same quality and do not add significantly to those from the nominated sites.

Pinson Mounds

The Pinson Mounds are located in Madison County, in southwestern Tennessee (about 650 kilometers southwest of Fort Ancient). The site consists of as many as 30 earthen mounds and a roughly semi-circular earthwork encompassing almost seven hectares (comparable in size to Mound City). The entire complex includes habitation areas and related earthworks in an area approaching 160 hectares. Several mounds at Pinson are among the largest Hopewell mounds ever constructed, and some appear to align to solar equinox and solstice events. The site includes some of the best evidence for the use of rectangular, flat-topped mounds as stages for ritual and ceremony during Hopewell times. A range of exotic artifacts, raw materials, and ceramic styles point to the builders' participation in the Hopewell interaction sphere.

Though of some interest for its platform mounds, the modest size of Pinson's geometrically imprecise enclosure, and meager astronomical properties do not approach the sophistication of those aspects of the nominated Hopewell Ceremonial Earthworks.

Marksville State Historic Site

The Marksville State Historic Site, in Avoyelles Parish, Louisiana, is the largest and most complex Middle Woodland (i. e., contemporaneous with Hopewell) site in the lower Mississippi Valley. The site includes several large mounds bounded by an irregular, semi-circular ditch-and-embankment more than 800 meters long and enclosing about 16 hectares (equivalent to the large circle at Seip). As many as 70 small circular earthworks are in the immediate vicinity. Artifacts and raw materials from Marksville indicate significant participation in the Hopewell interaction sphere. Jones and Kuttruff (1998) cite evidence that the site was constructed to a preconceived plan using a standard unit of measurement, the so-called "Toltec Module."

Though Marksville provides good evidence of the distant range of the Hopewell interaction sphere, its earthworks are typologically unrelated, and much less complex and sophisticated than those included in the nominated series.

Kolomoki Mounds

Kolomoki Mounds, in Early County, Georgia, is one of the largest and most impressive mound sites in the southeastern United States. It contains at least nine large earthen mounds, the largest of which is nearly 17 meters tall. Two linear embankments one to two meters tall and up to 300 meters long frame the mound area on the north and south sides, but these can only loosely be considered to form an enclosure. The site was originally attributed to the later Mississippian culture, but recent studies have dated its construction to a very late stage of the Hopewell interaction, between 350 and 750 CE.

The architecture at Kolomoki consists almost entirely of mounds; the only earthworks there, like those at Marksville, are typologically unrelated to those being nominated here, and would not add significantly to the series.

Fort Center

Fort Center is an earthwork complex located in Florida's Lake Okeechobee basin. The most prominent earthwork is a large circular ditch, 365 meters in diameter (enclosing roughly 9 hectares), which is close to the diameter of Newark's Great Circle. The entire site covers about 150 hectares and includes, in addition to the large circle, four smaller circles, parallel linear embankments, and also mounds and ditches. Artificial ponds preserved an array of wooden objects, including a mortuary platform and naturalistic sculptures on posts. Fort Center has produced a remarkable record of Indigenous artistic achievement, including rarely preserved objects crafted in wood. The large circle has been dated to as early as 800 – 350 BCE, but other site components date from between 80 and 1400 CE; a cluster of dates indicate considerable activity during the Middle Woodland period.

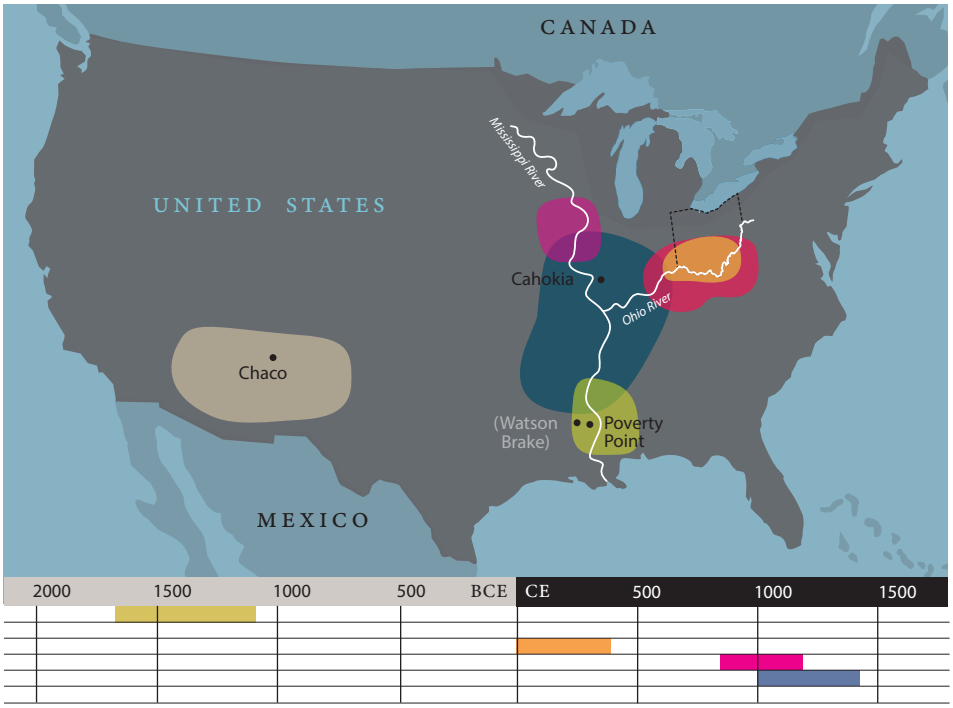
Although some of Fort Center's earthworks were contemporary with and resemble Ohio Hopewell designs, they do not incorporate the geometrical precision or the astronomical alignments documented for the Hopewell Ceremonial Earthworks. There is no material or artifact evidence that Fort Center directly interacted with the Hopewell ceremonial traditions.

Hopewell Comparison Conclusion

This analysis demonstrates that the components included in this serial nomination are the largest, most elaborate, and best preserved of the many intricate and precise earth-walled geometric and hilltop enclosures built in the Hopewell cultural tradition throughout eastern North America. None of the other Hopewell or Hopewell-influenced sites, either in the Ohio region or beyond, display an equivalent combination of complex geometry and astronomical alignments on a vast scale, or associated artifacts giving evidence of the continent-wide interaction sphere, ceremonial artistry, and cultural practices of the Hopewell tradition.

Concentrated in the heartland of this tradition, the eight nominated sites are the most complete exemplars of the wider Hopewell phenomenon. Together they embody the highest expressions of Hopewell earthen architecture and encompass the full spectrum of creativity and variability in the Hopewell architectural repertoire. These components include the finest examples of the largest, most complex, best-studied, and best-preserved of all the Ohio Hopewell lowland geometric enclosures, as well as the largest and most complex of the hilltop enclosures. They constitute the complete and necessary collection to illustrate the attributes of Outstanding Universal Value.

3.–**11** Map and Timeline showing the regional extent and chronology of monument-building Indigenous cultures in North America.



This second section of the Comparative Analysis will establish that the Ohio Hopewell phenomenon is distinctive among those Indigenous North American cultures that have produced monumental earthworks (as distinct from "mounds"). The geographic range of these comparisons is North America, although recognizing that there are no candidates in this category in present-day Canada, and that Chaco cultural influence did extend somewhat into what is now Mexico. None of the great empires of southern Mexico are included here, as they were completely different in all respects, both architecturally and culturally. These comparisons will demonstrate that no other North American Indian culture had equivalent cultural attributes or created architectural settings which manifest the Outstanding Universal Value of the Hopewell Ceremonial Earthworks.

The comparative sites will be treated as examples, within general summaries of their cultural, temporal, and geographical contexts, which are distinct from each other and distinct from Hopewell.

Watson Brake

The story of Indigenous monumental architecture in North America begins with Watson Brake, an earthwork complex in Ouachita Parish, Louisiana, dating to about 3500 BCE, which is to say, older than Egypt's pyramids or England's Stonehenge. Constructed over centuries by a hunter-gatherer society, the site consists of an oval earthwork about 270 meters across, connecting eleven mounds from one to over seven meters in height. The architecture was built up over centuries. The site was occupied seasonally, and then abandoned by about 2800 BCE. It appears to be completely discontinuous with all later cultural or architectural traditions.

Poverty Point Culture

At around 1600 BCE, and not far away, northeastern Louisiana emerged as the center of the Poverty Point Culture (named for its principal monumental site) whose flourishing also extended at least 160 kilometers across the Mississippi river and southward to the Gulf of Mexico. Theirs was a hunter-fisher-gatherer economy organized along egalitarian lines of kinship. The mound complex at Poverty Point itself is a singular achievement in earthen construction in North America.

Also notable is the rich material culture associated with this complex, much of which reflects the culture's contacts with distant points of origin. Though most artifacts from this culture were made from local clay and soils, abundant stone objects also indicate a trading network that ranged as far afield as Ohio (flint), Iowa (galena), and the southern Appalachians (copper).

Monumental Earthworks of Poverty Point

West Carroll Parish
Louisiana, USA
WH Inscribed 2014, Ref. #1435, Criteria (iii)

https://whc.unesco.org/en/list/1435/

Poverty Point, was inscribed on the World Heritage List as an "outstanding example of landscape design and monumental earthwork construction by a population of egalitarian hunter-fisher-gatherers." It is an elaborate earthwork complex built between 1700 and 1100 BCE, about 1,500 years earlier than the Hopewell Ceremonial Earthworks. Its principal feature is the roughly semi-octagonal earthwork composed of five sets of six roughly parallel wall segments separated by four radial avenues. The outermost ring of earthwork ridges is about 1200 meters in diameter; the innermost ring surrounds a plaza about 600 meters across, and which borders Bayou Maçon. There is evidence that nearly 40 timber post circles were erected in the plaza. A huge earthen mound (Mound A) dominates the western border of the site. With a volume of 238,500 cubic meters, Mound A is the second largest earthwork in North America, exceeded only by Monks Mound at Cahokia (See below).

There is evidence for complex geometric relationships within the Poverty Point complex; and between Poverty Point and other mound complexes in the region. The principal earthworks at Poverty Point display a semi-elliptical geometry. A true north-south meridian extended through Poverty Point's Mound A intersects two other mounds located about 600 meters north and 180 meters south of it. This same meridian intersects a fourth mound 2.4 kilometers south: the Lower Jackson Mound that predates Poverty Point by more than 1,500 years. The southwest and northwest avenues are generally in alignment with the summer and winter solstice sunsets, although the difficulty of determining a center point for the earthwork compromises their precision.

The Poverty Point complex was built at a scale similar to the Hopewell Ceremonial Earthworks, but has neither the precise geometric harmonies nor the repetition of forms across a wide geographic region exhibited by the sites of the nominated Property. Although Poverty Point was also created by a simple egalitarian society, it is an isolated, unique, and precocious structure, a singular achievement that would not be repeated in other locations, nor equaled in the region for another 1,000 years.

Adena & Hopewell Cultures

The next fluorescence of monumental architecture was achieved about 1,000 years later by the earth-building cultures of the central Ohio River Valley—the Adena, from 500 BCE, and then the Hopewell, from 1 to 400 CE. As more fully described in Section 2.b, these traditions developed mound and earthwork architecture and extended their influences far and wide. They were mainly hunter-gatherers, though with growing horticultural skills. Yet compared with the Adena, the Hopewell, after about 1 CE, attained a far greater level of sophistication and precision, and a far greater breadth of regional consistency in earthwork design, construction, and astronomy.

Effigy Mound Culture

Over the next several centuries, up to about 1200 CE, and also in the Midwest, the Effigy Mound culture occupied the Upper Mississippi River Valley. This Late Woodland culture continued to rely primarily on locally domesticated native plants, such as squash and sunflower. Although they were growing maize by about 900 CE, the effigy builders were never committed to a maize-agriculturalist economy in the same way that the later Mississippian cultures were. Their small and often clustered effigy mound sites were places of ceremony, including mortuary rituals.

Serpent Mound in Ohio has been dated to around 1100 CE, making it contemporary with both the Effigy Mounds and Cahokia (see below). It is associated with a village and burial mound site of this time period, as well as two Early Woodland burial mounds and a smaller Early Woodland occupation in the immediate vicinity. Its most likely construction date means that its builders would have been maize agriculturalists living in large villages, and with some ties to the Mississippian traditions to the west.

Effigy Mounds National Monument

Allamakee County, Iowa, USA

Not on the World Heritage List or the US World Heritage Tentative List.

Effigy Mounds National Monument includes more than 200 small, earthen mounds built between 900 and 1200 CE in the shapes of a variety of animals, including birds, bears, and panthers or water spirits. There are also linear embankments and large numbers of conical burial mounds. The effigy mounds could also include burials. The largest concentration of mounds in the monument (the Sny Magill Unit) contains 112 mounds. The effigies are usually arranged in linear groups up to about 500 meters long and occupying areas up to about three hectares. The largest single effigy is the Great Bear Mound, 42 meters long and over a meter in height.

Although it has occasionally been argued that some effigy mounds in the region have astronomical alignments, these have not been persuasive for most scholars.

The effigy mound clusters, both in the National Monument, and nearby in Iowa and Wisconsin, are small and reveal no geometric ordering either individually or in their groupings. Few significant artifacts are associated with these sites, and there is no evidence of far-flung cultural interactions. They were built by a more settled society of maize agricultural-ists, and thus are quite distinct from the Hopewell Ceremonial Earthworks.

Serpent Mound State Memorial

Adams County, Ohio, USA
US World Heritage Tentative List since 2008

https://whc.unesco.org/en/tentativelists/5248/

Serpent Mound, at 435 meters long, is the largest securely documented effigy mound, or geoglyph, in the ancient world. Its three primary coils wind along a gentle saddle between its spiraling tail and an enigmatic head shape, both of which stand above sheer cliffs. Astronomical alignments incorporated into the structure allow the architecture to reflect the sacredness of the heavens by expressing those cosmic rhythms in its form and structure.

The head of the Serpent Mound appears to be aligned to the setting sun on the summer solstice, while its three coils approximate alignments either to the summer and winter solstices and the spring and fall equinoxes, or the lunar maxima rise and set points along with the mid-point rise and set. The fact that varying alignments can be proposed for the same three coils indicates that the short sight lines and lack of clear linearity or obvious symmetry in the embankment renders uncertain any determination of the intentions of its builders.

In contrast with the Hopewell Ceremonial Earthworks, Serpent Mound is very small, and although beautiful in its undulating form it is imprecise in its geometry. The soft shapes are also not effective as precise astronomical markers. Explorations at the effigy have yielded few significant artifacts. Finally, it was most likely built by a society of village-dwelling maize agriculturalists. For all these reasons, it is not comparable to the nominated series, other than being located among them in southern Ohio.

Mississippian Culture

The Upper Mississippi effigy builders were partially contemporaneous with, and ultimately replaced by, the more dominant Mississippian culture which, at its peak between 1000 and 1150 CE, produced a series of large urban centers, from Arkansas to Indiana to Wisconsin.

These were complex chiefdoms supported by vast systems of maize agricultural production; each principal center controlled several satellite mound centers and numerous agricultural villages and hamlets scattered throughout the surrounding countryside. The largest of these centers was Cahokia, just east of modern St Louis, Missouri, where the grand temple-palace of a powerful hereditary leader stood atop the largest of many rectangular platform mounds, and the population of the city below may have been as large as 20,000—larger than any in Europe at the time.

Cahokia Mounds State Historic Site

St. Clair County, Illinois, USA
Inscribed 1982, Ref # 198, Criteria (iii) (iv)

https://whc.unesco.org/en/list/198/

Cahokia Mounds is the largest pre-Columbian urban and mound center in North America north of Mexico. Encompassing more than 1600 hectares, it reached its height during the Mississippian period (800–1350 CE). The principal feature of the site is Monk's Mound, the largest earthen pyramid in the Americas: its base covers five hectares and the summit stands nearly 30 meters high. The remains of this vast urban complex include a Grand Plaza and more than 100 sub-structural and burial mounds. Cahokia was the greatest of several similar "Temple Towns" in the central Mississippi Valley region in this period.

The city is laid out on a consistent, if somewhat irregular grid; its principal mounds conform to quadrilateral plan forms. A number of circular posthole patterns have been documented west of Monk's Mound. These woodhenges were likely used for marking astronomical alignments, including the sunrise on the summer and winter solstices as well as the equinoxes. They were generally imprecise however, and a majority of the posts had no apparent astronomical significance. East of Cahokia, at a distance of 24 kilometers along a straight roadway, a group of 12 mounds called the Emerald Acropolis defined a plaza whose axis was aligned with the northernmost moonrise.

Cahokia and the other related Mississippian temple towns scattered across the southeastern

United States are indeed grand in scale and conception, but they lack the geometric and astronomical precision of the Hopewell Ceremonial Earthworks (the Emerald Acropolis captures only one, not all eight, of the lunar standstills). Moreover, these centers had large resident populations, fueled by maize agriculture, and led by hereditary chiefs with authority to compel their followers to undertake such projects.

Ancestral Puebloan Culture

Meanwhile, in the southwestern United States, the people of the Chaco culture (the Ancestral Puebloans) were sedentary farmers whose civilization reached its height between 850 and 1250 CE. They were a multi-ethnic society, supporting impressive, hierarchical urban centers and long-distance trade and exchange networks across a vast system of roads. The concentration of extraordinary masonry architecture in Chaco Canyon is variously interpreted as a ceremonial city, a pilgrimage center, and/or a city-state.

Large nobles' palaces, each the nucleus for a community of farmsteads, strongly suggest that Chaco Canyon was politically stratified. Human remains buried at Pueblo Bonito indicate that members of at least two distinctive groups lived together at the site. There also is evidence of long-distance trade and exchange, principally with Mesoamerica.

Chaco Culture

Northwestern New Mexico, USA
Inscribed 1987, Ref. #353, Criteria (iii)

https://whc.unesco.org/en/list/353/

Chaco Canyon was a major center of the Ancestral Puebloan (or Chaco) culture between 850 and 1250 CE. It was inscribed on the basis of its "remarkable, monumental public and ceremonial buildings and its distinctive architecture, unlike anything constructed before or since." Its most monumental components are twelve large masonry buildings, often referred to as Great Houses. Pueblo Bonito, the largest of these, rises to four stories, sprawls over more than a hectare, and contains 800 rooms. In addition to the Great Houses, the architecture of Chaco Canyon included large earthen platform mounds, and a variety of waterworks. A network of long roadways defined by parallel berms connected the city to many other settlements.

The architecture of the Great Houses is composed of complex though somewhat imprecise squares, circles, and half-circles. A sophisticated knowledge of astronomy is reflected in various solar and lunar alignments both within and between the individual Great Houses. Five incorporate solar alignments—one to the solstice, one to the equinox, and three to the cardinal directions. Seven incorporate lunar alignments—five to a minor standstill and two to a major.

While the core ceremonial district of "downtown Chaco" stretched for several kilometers along the canyon floor, even the largest of the individual Great Houses, Pueblo Bonito, occupied less than about 1.2 hectares at its height. Thus the architectural scope is not comparable to the nominated sites. The lunar alignments do not involve all eight points in the moon's long cycle. Moreover, the society was more hierarchically structured, with nobles occupying the Great Houses and commoners living on surrounding farmsteads. Therefore, the characteristics of the culture are entirely different.

North American Comparison Conclusion

Comparisons between the nominated serial Property and other monumental works by Indigenous cultures in North America has established the distinctive character of Hopewell achievement in this geographic and chronological context. Apart from Chaco Culture, the geometrical and astronomical properties of the sites discussed here are less precise, and most of them, as monumental architectural conceptions, are much smaller. The Hopewell Ceremonial Earthworks also stand apart from all the others as "vacant ceremonial centers"—places of widespread importance and influence, yet conceived and created by otherwise dispersed, non-resident, non-hierarchical groups. This means that their extreme architectural elaboration would have been aligned more with ceremonial assembly (periodic) than with socio-political (continuous) motives and associations.

With Cahokia and Poverty Point already inscribed on the UNESCO World Heritage List, the addition of the Hopewell Ceremonial Earthworks would help to complete the inclusion of the full sweep of North American Indigenous earthwork building—only the effigy traditions would remain.

The third and final comparative context compares the Hopewell Ceremonial Earthworks with worldwide examples of other monumental and/or astronomically significant works by ancient, mixed-economy, or non-urban cultures. Searches of both inscribed and tentative World Heritage properties, plus other research, have yielded the following comparable sites.

In the Americas:	1	The Geoglyphs of Acre, in Amazonian Brazil
	2	The Lines and Geoglyphs of Nazca, in Peru
	3	The Chankillo Solar Observatory and Ceremonial Center, in Peru
In Europe:	4	Stonehenge, Avebury and Associated Sites, in the United Kingdom
	5	The Heart of Neolithic Orkney, in the United Kingdom
	6	The Royal Sites of Ireland
In the Middle East & Africa:	7	Gobekli Tepe, in Turkey
	8	Great Zimbabwe National Monument, in Zimbabwe
	9	The Stone Circles of Senegambia, in Gambia & Senegal
In Asia & Australia:	10	Wurdi Youang, in Australia
	11	The Mozu-Furuichi Kofun Group of Mounded Tombs, in Japan

3.-**11** Location of sites included in the following global comparison.

The Outstanding Universal Value of the series will be compared to these properties by reference to the specific attributes defined above in 3.1.b; as noted above, the criterion (i) attributes have more applicability in a global context. This final comparative context will establish that the Hopewell Ceremonial Earthworks are a unique and significant addition to the World Heritage List, that they offer the clearest and most exceptional testimony to the Outstanding Universal Value attributes, and that no other properties have a similar combination of values and attributes.

Geoglyphs of Acre

Since the late 1990s, more than 400 geometrically patterned earthen geoglyphs have been discovered and described in western Amazonia from northern Bolivia to western Brazil. In the state of Acre, the number continually increases. The geoglyphs so far reported include perfect circles, rectangles, and also composite figures such as the Fazenda Colorada site, consisting of a ditch circle and rectangle with external embankments, and a double ditch structure in the form of a three-sided square. The earthen geoglyphs are monumental figures ranging in size from 50 to more than 200 meters across, that is to say, sometimes approaching half of the size of the average Hopewell enclosures.

These Amazonian geoglyphs have not been comprehensively studied, but appear to date to between 500 BCE and 1250 CE. They do not appear to be urban centers or fortifications. Instead, like the Hopewell Ceremonial Earthworks, they are thought to be ceremonial centers at which small, dispersed communities would gather for feasts and periodic rituals. By 500 CE onward, however, more complex societies emerged in Amazonia, ruled by regional chiefs whose political power could extend for many kilometers.

The Geoglyphs of Acre include geometric figures such as circles, squares, rectangles, and octagons.

Although generally much smaller, these Amazonian earthworks appear to have some resemblance to the Hopewell sites, and at least in the earlier centuries of their development they were created by similar societies. However, these monuments have not yet been analyzed in ways that might shed light on the degree to which they incorporate complex geometric regularities or astronomical alignments, or regionally shared precision of design methods and principles.

Lines & Geoglyphs of Nazca & Palpa Pampas de Jumana

About 70 representational geoglyphs have been identified across the plain of Nazca in Peru. Most are modest in size in comparison to the Hopewell Ceremonial Earthworks: many of the Nazca geoglyphs are on the order of about 100 meters across, the largest (a pelican) is about 285 meters long. Many of the lines are several kilometers long. The lines and figures are formed by removing a shallow layer of surface pebbles, exposing lighter colored earth beneath.

The Nazca geoglyphs are arrayed over a vast desert plain devoid of permanent settlement, but their creation has been associated with nearby settlements supported by irrigated agriculture. Current interpretations of the Lines and Geoglyphs of Nazca and Pampas de Jumana view them as ritual pathways walked by pilgrims from nearby settlements, during the observance of ceremonial rites.

Among the geometric figures are trapezoids ranging up to a kilometer in length, though any apparent overall geometric ordering is absent. There are no confirmed astronomical alignments associated with the Nazca lines and geoglyphs.

Because of their small size and subtractive construction, the iconic figural geoglyphs at Nasca bear no resemblance to the earthen architecture of the Hopewell Ceremonial Earthworks. They also lack persuasive, repetitive geometrical and astronomical properties, and were created by complex hierarchical societies supported by agricultural economies.

Chankillo Solar Observatory & Ceremonial Center

The Chankillo Astronomical Complex, in the Ancash highland region of Peru, consists of a ceremonial and administrative center with defensive fortifications built on a hilltop, and a line of thirteen towers positioned along a parallel ridge to the east, all constructed with mortared stone. It is located in a fertile plain south of the Casma/ Sechin river basin.

Chankillo Astronomical Complex was built between 350 and 150 BCE, when the region was under the influence of the Chavin culture, which was hierarchically-structured and based on intensive cultivation of maize and potatoes.

The site's primary significance lies in the fact that its ridge-top towers, when viewed from two observation points directly to the east and west of this ridge, create precise horizon markers for the movements of the sunrise and sunset during a complete annual cycle.

The Chankillo structures are built with stone rather than earth, and by a society supported by intensive agriculture. While their solar alignments are comprehensive and quite precise, the geometrical ordering of the site's components is not equivalent to the formal precision of the Hopewell Ceremonial Earthworks, nor do they include a comprehensive marking of the far more complex movements of the moon.

Stonehenge, Avebury & Associated Sites

Located in Wiltshire, in southern England, Stonehenge, Avebury, and their associated sites were built between 3700 and 1600 BCE. The property encompasses two concentrations of Neolithic and Bronze Age ceremonial monuments. The first is dominated by Stonehenge itself—its nested circles and arcs of megalithic pillars and trilithons surrounded by a circular ditch and earthen embankment. The outer ring of standing stones forms a true circle approximately 37 meters in diameter; the encircling bank and ditch is about 140 meters in diameter, or less than half the diameter of Newark's Observatory Circle. The surrounding landscape includes a number of associated monuments: the Avenue, the Cursus, the Durrington Walls, the Woodhenge, and the densest concentration of burial mounds in Britain. With a diameter of about 500 meters, the Durrington Walls are the largest known henge in Britain; an irregular, two-kilometer-diameter ring of five by ten meter pits has recently been discovered surrounding Durrington. The second concentration centers on Avebury, the largest prehistoric stone circle in the world. Two small stone circles stand within a larger ring, in turn encircled by a ditch and bank approximately 410 meters in diameter. Nearby stands the Silbury Hill, the largest prehistoric mound in Europe, at nearly 40 meters high. Also nearby are other significant Neolithic sites including Windmill Hill, the Sanctuary, the West Kennet Avenue and Long Barrow, and Overton Hill.

These two concentrations of monuments, together with their surrounding settings, form a remarkable cultural landscape shaped by human creativity over more than two millennia. Archaeological evidence, including battle wounds among the burials, suggests that Stonehenge was built by a society with a more complex organization—competitive, hierarchical, territorial groups led by strong chiefs and supported by a pastoral economy.

The purposes of these sites included astronomical alignments. Although the summer solstice sunrise and southern maximum moonset alignments at Stonehenge remain convincing, and much feasting occurred there around the time of the winter solstice, further astronomical properties and the claims for the site's sophisticated geometry are now largely discredited.

Stonehenge and Avebury are markedly similar to the Hopewell Ceremonial Earthworks. Similarly-aligned geometric figures, parallel-walled embankments connecting to nearby rivers, and evidence of timber post circles, all suggest equivalent attempts to link the order of the earth (geometry) with the order of the sky (astronomy) as a structured, cosmological world. Yet there are significant differences. Only Avebury and Durrington approach the size of the Hopewell earthworks; the outer Sarsen Ring at Stonehenge would fit inside the Seip-Pricer Mound. The newly discovered circle of Durrington Shafts shows the builders' ability to plan huge-scale landscapes, although it lacks a geometric precision equivalent to the Hopewell achievement, as do all except a few of Stonehenge's elements.

Heart of Neolithic Orkney

This property is one of the most important Neolithic sites in Western Europe. It includes the Stones of Stennes (four standing stones surrounded by a ditch and bank) the Ring of Brodgar (36 stones in a circle, with 13 nearby mounds), the large chambered tomb of Maeshowe, and the sophisticated settlement of Skara Brae with its stone houses and covered passages. The setting is a vast and visually interconnected landscape stretching to other ancient monuments. The open landscape today enables a good understanding of the apparent connections among these sites, while abundant burial and occupation sites nearby help form an exceptional relict cultural landscape.

The sites reveal the domestic, ceremonial, and burial practices of the farming culture that lived in this remote archipelago five thousand years ago, and that gave rise to the later social, spiritual, cultural, and material developments at Avebury and Stonehenge in England, Bend of the Boyne in Ireland, and Carnac in France.

Visual linkages among the sites, and the surrounding monuments and horizons have not yielded specific astronomical alignments, other than an approximate orientation of the tomb of Maeshowe to the solstice sunset.

Through its combination of well-preserved ceremonial, funerary, domestic, and monumental evidence, the Heart of Neolithic Orkney provides testimony to an ancient culture in a way that is comparable to the nominated Property. However, the scale of its architecture, and its lack of uniformity in design, precise geometric ordering, or detailed astronomical knowledge distinguish it from the Hopewell Ceremonial Earthworks.

The Royal Sites of Ireland: Cashel, Dún Ailinne, Hill of Uisneach, Rathcroghan Complex, & Tara Complex

These collected sites include a large array of monuments ranging from Bronze Age tumuli, to Iron Age ring forts, to early Christian architecture, and are part of larger archaeological landscapes with further concentrations of ritual monuments. Situated on strategic and elevated locations, they incorporate henge enclosures, earthen rings, timber circles, mounds, water features, and avenues.

The primary significance of these sites is associated with the evolution of kingship in Ireland during the Iron Age. These are sites of royal inauguration, ceremony, feasting, and assembly. They represent each of the four Irish provinces, are strongly linked to myth and legend, are associated with the transformation of Ireland from paganism to Christianity, and are hence vitally important to the ongoing identity of Irish culture.

Astronomical alignment is not a fundamental principle organizing the Iron Age architecture, and no precise geometric relationships are evident in the planning of these sites.

Although these are places of assembly, ceremony, and burial, with some similar architectural features (earthen circles, mounds, avenues), they are reflections of hierarchical, royal cultures supported by complex Iron Age farming economies based on well-established grain crops and dairy cattle. They also lack sophisticated geometrical or astronomical properties.

Göbekli Tepe

Gobekli Tepe includes the earliest monumental megalithic architecture yet known. Dating from 9000 BCE, this ridgetop site has revealed a series of at least four roughly circular or oval structures, each defined by up to twelve decorated, T-shaped, limestone pillars connected by stone walls and benches. The structures are about 10-15 meters in diameter and the pillars stand three to four meters tall; the connecting walls and benches stand about two meters tall. The center of each enclosure is dominated by two larger T-shaped megaliths decorated, as are many of the others, with finely executed, naturalistic bas-reliefs of birds, boars, foxes, snakes, and spiders. These monumental chambers likely stood open to the sky. Geophysical surveys of the 9-hectare site suggest at least 20 such enclosures and more than 200 megaliths may exist inside the mound. Hearths, middens, or other evidence of domestic habitation are absent from the site.

The particular significance of Gobekli Tepe is its great antiquity, the size and sophistication of its megalithic monuments and buildings, and the socio-economic base of its builders—a hunter-gatherer society actively experimenting with plant and animal domestication and participating in the transition to systematic agriculture.

There are no known astronomical alignments, and no evident precise geometric relationships in the planning of the site.

Gobekli Tepe shares with the Hopewell Ceremonial Earthworks the unusual combination of sophisticated, monumental, ceremonial architecture, and a society of egalitarian hunter-gatherers experimenting with agriculture. The form of the architecture, however, is on an intimate rather than a vast scale, and emphasizes megalithic and sculptural forms. Complex geometrical and astronomical knowledge is not among the attributes contributing to the site's Outstanding Universal Value.

Great Zimbabwe National Monument

Great Zimbabwe was the capital city of a state level society of the ancestors of the Shona, a Bantu people that continue to live in the region today. It was occupied between 1100 and 1450 CE. The city covered nearly 80 hectares, and was dominated by three architectural complexes of dry-stone masonry: the Hill Ruins, the Great Enclosure, and the Valley Ruins. The Hill Ruins, or Acropolis, includes granite rubble-stone ruins thought to be the residences of the rulers of Zimbabwe, as well as a ritual enclosure marked by upright steatite posts topped with birds. The Great Enclosure is an impressive, elliptical granite wall, probably the largest ancient structure in sub-Saharan Africa. It encloses what was once a residential area consisting of huts for a portion of the community. The Valley Ruins are a series of nineteenth-century stone and brick masonry dwellings.

Zimbabwe was a major center of trade and commerce. In the 14th century, its territory extended over lands rich in gold, and the city reached a population of over 10,000, governed by a royal elite. Chinese and Persian ceramics, Southwest Asian glassware, and a coin from Kilwa, a 14th century Sultanate located along the Tanzanian coast of east Africa, have been found at the site.

No precise geometry or known astronomical alignments exist at Zimbabwe.

As a masonry residential structure in an urban center, the architecture, function, and culture of Zimbabwe are all fundamentally different from those of the Hopewell Ceremonial Earthworks.

Stone Circles of Senegambia

There are four large groups of stone circles in this Property, representing a much larger concentration of over 1000 circles, spread throughout a 100- by 350-kilometer region along the River Gambia, in Gambia and Senegal. Within the Stone Circles of Senegambia Property are 93 stone circles and many tumuli and burial mounds—a vast sacred landscape in use and development from 300 BCE to 1600 CE. The stones come from nearby laterite quarries, and were skillfully carved into generally uniform cylindrical or polygonal pillars averaging two meters in height, and arranged into circles (some double) with diameters of four to six meters.

These megalithic circles indicate a prosperous, well-organized society whose traditions persisted for nearly 2,000 years. They were accompanied by nearby iron smelting facilities and intact house floors. These complexes often included human and animal burials with iron and copper spears, domestic pottery, milling stones, metal implements, and cast figures, along with unique terracotta sculptures.

No astronomical connections have been proposed or discovered for the Stone Circles of Senegambia.

The stone circles of Senegal and Gambia, though they are spread across a vast region, are individually extremely small compared with the Hopewell Ceremonial Earthworks, and appear to lack any geometrical intentions or other large-scale ordering principles in their relative placement.

Mozu-Furuichi Kofun Group: Mounded Tombs of Ancient Japan

The Mozu-Furuichi Kofun Group is a series of 49 mounded tombs built between 250 and 700 CE in the Osaka Prefecture, Japan. Originally a group of more than 200, the tombs take a variety of forms, though a keyhole-shape was common. They ranged in size from just a few up to 400 meters in length. They were made principally of earth, covered with stone cobbles, and surrounded by one or more moats. The mounded tombs were tangible symbols of the relative political power of their deceased inhabitants.

The tombs stand as the only tangible expression of the hierarchical structure of Japanese society during the Kofun period. The population lived in towns and villages supported by rice agriculture, while the government was a militaristic coalition of clans ruled by a king. The militaristic aspects of the society are reflected in the funerary offerings in the mounded tombs—weapons, armor, and ornaments, along with various animals. There is evidence for considerable economic interactions with continental Asia, especially China and Korea.

There are four standard plans for the mounded tombs: keyhole-shaped, scallop-shaped, round, and square. The keyhole-shapes are highly symmetrical and based on a circle combined with an isosceles triangle. There is some standardization of sizes; particularly among the largest examples many approximate 200 meters in length. There are no indications that astronomical alignments have been incorporated into the plans of these structures.

The Mozu-Furuichi Kofun Group of mounded royal tombs reflect a hierarchical, militaristic society supported by intensive agriculture—a cultural situation completely different from that of the Hopewell earthwork builders. The keyhole-shaped tombs have a clear geometric derivation, and there is some standardization of sizes, but there is no evidence of an equivalent complexity or genius in directing that geometry toward lunar or solar alignments.

Wurdi Youang

Wurdi Youang is a roughly egg- or ovoid-shaped arrangement of about 100 roughly hewn basalt stones built by the Indigenous peoples of Australia sometime between 25,000 BCE and the arrival of European settlers. The individual stones range from about 20 centimeters in diameter to standing stones as tall as one meter. It is about 50 meters long on its main axis, which is oriented east-west.

The stone enclosure is situated on land traditionally owned by the Wathaurong Aboriginal people of southeastern Australia, and is thought to have been perhaps an initiation site. All knowledge of its specific uses or builders has disappeared. Radiocarbon dates from nearby locations suggest that the site could be as many as 11,000 years old.

Alignments from the figure's more pointed end, along its two more-or-less straight sides, point to the setting sun on the summer and winter solstices. From the same point, the central axis of symmetry crosses the center of its semi-circular side, marking the equinox sunset.

Though similarly built by non-hierarchically organized hunter-gatherers, Wurdi Youang is of stone not earth, and much smaller. Its possible astronomical functions are limited to the three key sunset positions, and only accurate to within a few degrees. Its geometric form is quite imprecise.

Global Comparison Conclusion

The Hopewell Ceremonial Earthworks are unique globally. As shown in these comparisons, other properties share some of the attributes defined here for the Outstanding Universal Value of the Hopewell Ceremonial Earthworks, but no other properties manifest all of them. The Hopewell constructions are unique and exceptional among ancient monuments worldwide in their combination of enormous scale, geometrical and astronomical precision, and region-wide consistency and distribution. In particular, the high precision in marking key rise and set points of the moon appears to be almost nonexistent among ancient monuments worldwide. As a series, they manifest the attributes of Outstanding Universal Value put forth in this nomination, when compared with other monumental works by ancient, mixed-economy, non-urban cultures in a global context.

This review of comparable properties has established that the Hopewell Ceremonial Earthworks are an exceptional example of monumental works by ancient, mixed-economy, non-urban cultures, and that no other properties in the world have a similar combination of values and attributes. This Property will also help to address several significant gaps that have been identified through UNESCO initiatives—summarized in Section 3.0 above.

The eight sites included in this series provide the best and most complete testimony to the characteristics and achievements of the Hopewell culture and its creation and use of elaborate ceremonial centers. The nominated components have been compared to all other significant Hopewell sites in the culture's Ohio valley heartland, as well as those representing other regional expressions of Hopewell ceremonial life. None of these other sites display an equivalent combination of large-scale complex geometry and astronomical alignments, together with evidence of an elaborate ceremonialism, continent-wide influence, and superb artistry.

The Hopewell achievement, attested to by these nominated sites, is a unique North American manifestation—unlike and largely unrelated to any other Indigenous monument-building culture on the continent. These earthworks are far more widespread than those of the earlier Poverty Point culture, and far larger those of the later effigy building culture of the upper Mississippi Valley, and far more sophisticated than either. The Hopewell culture and its economy are entirely different from those of the more urban, hierarchical societies of the later Mississippian cities such as Cahokia, or the southwestern Chaco culture. The attributes associated with the Hopewell culture and their monuments are unmatched from any pre-contact region or period in North America.

The UNESCO World Heritage List does not yet have any property, from anywhere in the world, which so vividly illustrates the brilliance of an ancient, mixed-economy, non-urban culture's geometrical, astronomical, earth-building, and artistic achievements. The combined geometrical and astronomical achievements that they manifest are both distinctive and unmatched elsewhere.

Proposed Statement of Outstanding Universal Value

Brief Synthesis

The Hopewell Ceremonial Earthworks are a series of eight monumental Indigenous earthen enclosure complexes built along the central tributaries of the Ohio River in east central North America between 2000 and 1600 years ago. The eight components extend across a distance of 150 kilometers in southern Ohio, and the largest of the individual works encloses 55 hectares. Conceived and designed as ceremonial centers, these immense earthworks are the finest and most representative surviving expressions of the cultural flowering and distinctive genius of an Indigenous tradition now referred to as the Hopewell culture.

Their enormous scale and complexity is evident in precise geometric figures as well as hilltops sculpted to enclose vast, level plazas. Huge squares, circles, and octagons are executed with an astonishing precision of form, technique, and dimension, consistently deployed across a wide geographic region. There are alignments not only with the sun's cycles, but also with the far more complex rising and setting patterns of the moon.

These earthworks served as ceremonial centers, built by dispersed, non-hierarchical groups whose way of life was supported by a mix of foraging and farming, and who developed sophisticated knowledge of astronomy, geometry, and earthen construction. These sites were the foci of a continent-wide sphere of influence and interaction, and have yielded exceptionally finely crafted ritual objects fashioned from exotic raw materials obtained from distant places.

Criterion (i)

The Hopewell Ceremonial Earthworks are highly complex masterpieces of landscape architecture. They are exceptional among ancient earthworks worldwide not only in their enormous scale and wide geographic distribution, but in their geometric precision (such as circles greater than 300 meters with less than 0.25 meter variance, and a standard unit of measure) and in their astronomical breadth and accuracy (such as encoding all eight lunar standstills over an 18.6-year cycle). These features imply high-precision techniques of design and construction and an observational knowledge of complex astronomical cycles that would have required generations to codify. The series includes the finest extant examples of these various principles, shapes, and alignments, both in geometric earthworks and in the pre-eminent surviving hilltop enclosure. They reflect the pinnacle of Hopewell intellectual, technical, and symbolic achievement—an autochthonous monumental architectural tradition of extraordinary power and grandeur. They remain tours-de-force of landscape architectural design and engineering; their scale, precision, complexity, and extent is unmatched anywhere in the world.

Criterion (iii)

The complexity of these earthwork sites bears exceptional testimony to the unique characteristics of their builders, who lived in small, dispersed, egalitarian groups, between 1 and 400 CE, among the river valleys of what is now southern and central Ohio. Their economy was a mix of foraging, fishing, farming, and cultivation, yet they gathered periodically to create, manage, and worship within these massive public works. The precision of their carefully composed earthen architecture, and its timber precursors, reflected an elaborate ceremonialism and linked it with the order and rhythms of the cosmos. The

continent-wide reach of this culture's interactions is evident in raw materials brought from as far away as the Rocky Mountains, a distance of over 2,500 kilometers. Mica, copper, obsidian, and other exotic materials were formed into beautiful ritual objects, spectacular offerings of religious icons and regalia. The quantity, diversity, and aesthetic quality of these artifacts have few equals in the history of American Indian artistry. The earthworks in this series, together with their associated artifacts and archaeological remains, offer the finest extant testimony to the nature, scope, and richness of the Hopewell cultural tradition.

Statement of Integrity

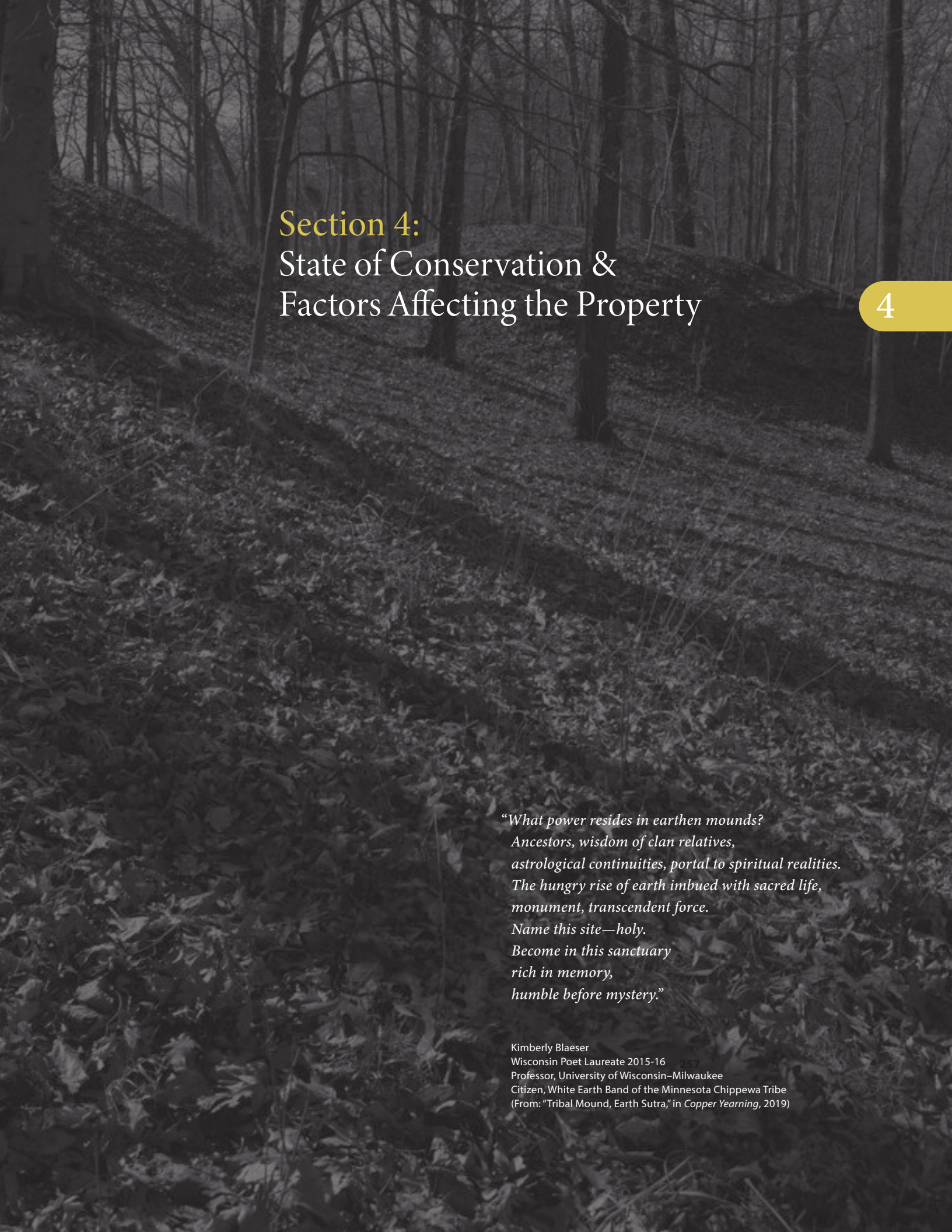
Within the Boundary of this 320.7-hectare serial Property are all the attributes necessary to convey and sustain its Outstanding Universal Value. These include the earthwork walls, gateways, ditches, ponds, and in situ archaeological remains. The series is of sufficient size to ensure the complete representation of the features and values that convey the Property's significance, through the inclusion of the largest and best-preserved examples of each major geometric form found among Hopewell earthworks, as well as the most important hilltop enclosure. In addition, all of the components are complete and in good condition, with the ability to convey their large forms and the relationships among them. There is a 561.8-hectare Buffer Zone around the nominated components to protect the attributes that sustain their Outstanding Universal Value. The Property does not suffer from adverse effects of development and/or neglect, as each site is managed as a public park in rural or low-density suburban settings. The curated artifacts in site-based collections also help support the understanding of the attributes, providing extensive evidence of the creative genius and sophisticated knowledge and skills of the earthwork builders, and giving ample testimony to the domestic as well as the ceremonial places and practices of the Hopewell culture.

Statement of Authenticity

The Hopewell Ceremonial Earthworks are authentic to an extraordinary extent, given the long time that has elapsed since their construction, in terms of their locations and settings, forms and designs, materials and substance, and spirit and feeling. The locations for all the components are unchanged; the settings for the earthworks are still predominantly semi-rural or are in low-density residential districts buffered for most of their perimeters by parkland. In form and design, the earthworks' enclosure walls and mounds remain mostly intact. Seip, Hopewell, Hopeton, and High Bank reveal sub-surface portions of their forms clearly in high-resolution remote-sensing data, indicating intact sub-surface remains of the base layers of wall and building construction. The predominant materials and substance of the earthworks are likewise authentically preserved in the intact forms of Fort Ancient and the components at Newark, and in the in-situ archaeological remains at all the other sites. The respectful management and presentation of the eight components helps to convey the uncanny grandeur of these gigantic enclosures, their scope and beauty, and their geometrical and astronomical precision. Their spiritual resonance with contemporary American Indian Woodland traditions also supports a vivid authenticity of spirit and feeling.

Requirements for Protection & Management

All of the Hopewell Ceremonial Earthwork components are protected as national or state parks and do not suffer from adverse effects of development or neglect. The standing structures, the landscape features, and the archaeological resources necessary to convey the Outstanding Universal Value of the nominated serial Property are in good to excellent condition. Detailed management plans are in place for all eight earthwork sites, following the established policies and legal requirements of their respective governmental owner agencies, the Ohio History Connection and the U. S. National Park Service, whose local representatives work closely together to provide consistent and coordinated management for the series. All features and elements within the Boundary of the nominated Property are closely monitored on a regular basis by professional expert staff from the two owner agencies. Regular maintenance and periodic conservation programs ensure that the sites, features, and resources will be sustained in a superior state of conservation into the future. Rigorous federal, state, and local protective measures are also in place to ensure the continued conservation and protection of the nominated Property. The Property is not under any major environmental threats or developmental pressures.



Section 4:
State of Conservation & Factors Affecting the Property

4

"What power resides in earthen mounds?
Ancestors, wisdom of clan relatives,
astrological continuities, portal to spiritual realities.
The hungry rise of earth imbued with sacred life,
monument, transcendent force.
Name this site—holy.
Become in this sanctuary
rich in memory,
humble before mystery."

Kimberly Blaeser
Wisconsin Poet Laureate 2015-16
Professor, University of Wisconsin–Milwaukee
Citizen, White Earth Band of the Minnesota Chippewa Tribe
(From: "Tribal Mound, Earth Sutra," in *Copper Yearning*, 2019)

4.a Present State of Conservation

The component sites of this serial Property have survived essentially intact over 2,000 years despite impacts, in some cases, from agriculture and other factors during the last two centuries. All eight components are well protected by state and federal laws and agencies, and there are no significant development pressures or other threats adversely affecting them.

Introduction

The landscapes of the Hopewell Ceremonial Earthworks are in good, stable condition. This is in part a testament to the builders of these earthworks themselves, who selected locations where soils were stable and had good drainage, and where flooding or erosion were unlikely. The five sites in the Scioto and Paint valleys were all built on the second terrace, a Pleistocene floodplain that has not been active since pre-glacial times. The Octagon and Great Circle Earthworks in Newark were sited on a high glacial outwash terrace, similarly out of the danger of flooding. The high ridgetops of Fort Ancient are far beyond the reach of flooding, though subject to some erosion as a result of the steep topography.

All of the sites were covered by forests between 400 and 1800 CE; while this condition was not authentic to their origins, it preserved them well. Today, only at Fort Ancient are large portions of the earthworks still forested, as is the extreme northern edge of Hopewell Mound Group. More park-like settings, with scattered or surrounding trees, define Mound City, and the Octagon and Great Circle Earthworks. Seip, Hopeton, High Bank, and most of Hopewell are essentially all open fields, having been in agricultural use for many decades. Current landowners within the Buffer Zone (authorized boundaries) of the National Park practice no-till agriculture, and park staff monitor these land parcels closely for any disturbances—until such time as they may be purchased.

The history of management and restoration varies significantly among the sites, as described in Section 2.b. For some, the biggest impact has been agricultural activities, damaging the above-grade earthworks but leaving the archaeological resources largely intact. At other sites, past uses have disturbed below-grade resources within and around the enclosures, but left the architecture of the earthen walls and mounds largely intact—or in a few cases, restored.

The principal factors affecting the conservation of the earthworks and their archaeological resources today are from tree falls, invasive woody vegetation, erosion, and burrowing animals.

Octagon Earthworks

The earthen walls of the Octagon Earthworks are in an excellent state of preservation. With the exception of a short wall segment that was moved for the expansion of the golf course's clubhouse, they have had only a small amount of restoration or modification. Some disturbance of the interior occurred in the nineteenth and twentieth centuries, from plowing and golf course elements. The archaeological integrity has not been well-studied, but is likely in a very good state of preservation. There are only a few trees atop the walls, mostly along the northeastern side of the site, where some animal burrows are also present.

4.-**1** One of the walls of Newark's Octagon Earthworks, showing its excellent state of preservation.

Great Circle Earthworks

The enclosing wall and ditch, and restored Eagle Mound, of the Great Circle Earthworks, are in an excellent state of preservation, with just a small amount of earth restored to the top of the walls in a few isolated locations. Despite decades of disturbance within the interior of the Great Circle, including its use as a fairgrounds and race track, the interior is likely in good condition archaeologically. Some trees still stand on the walls, in the ditch, and on the Eagle Mound.

Hopeton Earthworks

The Hopeton Earthworks, despite years of agricultural erosion and compaction, remain in a very good state of preservation. Their outlines can still easily be seen through aerial photos, and their sub-surface remains and other archaeological resources are in excellent condition—essentially intact. Interpretive mowing presents the site to visitors today, with the earthworks kept in tall native plants and not mowed for most of the year, and the areas around them mowed for contrast. Some burrowing animals are present at the site.

4.-**2** Mound City from the northwest, showing the enclosing wall (immediate foreground with sun-lit highlight), and several mounds including Mound 7 (the tallest, at right).

Mound City Group

The impacts of Mound City's especially complex modern history (it was farmed, then built over by an army camp, before being thoroughly studied archaeologically; see Section 2.b) have been largely mitigated by its meticulous restoration and continuous maintenance since the 1920s. The restored mounds, earthworks, and borrow pits, and the surrounding forest clearing, are now in excellent condition, carefully managed through mowing of the turf grasses, and regular removal of invasive plant species. Shallow-burrowing moles present a minor aesthetic issue throughout the site.

High Bank Works

High Bank Works is the quintessential example of a site whose architecture is nearly invisible above grade to the uninformed eye, due to its long history under the plow, but is intact archaeologically below grade. On balance, the site is in good condition. Some rodent burrowing has been noted in parts of the property.

Hopewell Mound Group

The architecture of the Hopewell Mound Group has been reduced through agricultural practices and unrestored archaeological investigations of its many mounds, yet on balance, and considering its extensive, known subsurface features, the site is in a very good state of preservation. Much of the wooded area of the site consists of older canopy trees, but in transitional areas, woody invasive plants need to be regularly managed, especially on the largely intact northern embankment walls. Three large, metal electrical towers stand within the boundary at Hopewell Mound Group, under an easement agreement between American Electrical Power (AEP) and the National Park Service.

Seip Earthworks

Seip Earthworks remains in a good state of preservation. It has experienced some of the same erosion and compaction from agriculture as Hopeton, High Bank, and Hopewell, although, like those sites, extensive and intact subsurface remains have been confirmed by geophysical surveys, indicating an excellent archaeological condition. Immediately after its excavation in the 1930s, the Seip-Pricer mound near the center of the earthworks was rebuilt; it is free of trees, and no burrowing animals have been noted. A differential planting and mowing plan, similar to that at Hopeton, is maintained.

Fort Ancient

The walls and mounds at Fort Ancient remain in excellent condition, as do the interior enclosed spaces and their potential archaeological resources. The site's string of interior ponding areas remain perceptible, although many were fitted with drainage culverts during the 1930s, some of which are beginning to fail. Fort Ancient is uniquely steep and forested among the Hopewell Ceremonial Earthworks, so its principal threats are from erosion, land slippage, and tree-falls.

4.-**3** Walls and ponds at Fort Ancient, near the Great Gateway.

4.b Factors Affecting the Property

(i) Development Pressures

There are no current development pressures on the Hopewell Ceremonial Earthworks. All of them stand on well-managed public lands, within stable suburban or predominantly agricultural settings. Within the Property and Buffer Zone, adequate land controls are ensured by current government ownership, restrictions within the authorized boundary of National Park lands, and zoning in the adjacent residential districts of Newark and Heath.

(ii) Environmental Pressures

The principal threats to these earthworks come from natural forces and, to a lesser extent, from the impacts of visitation. In addition to the careful geological placement of their monuments, the earthwork builders also benefitted from a stable climate in the Ohio River Valley, generally without the kinds of natural disasters present at ocean coastlines or along fault lines. The many centuries of the earthworks' excellent preservation under forest cover speaks well of this architecture's ability to withstand the region's natural forces.

However, certain areas are prone to soil erosion, particularly associated with extreme storms with heavy rainfall or high winds. Heavy rains can cause sheet erosion, slope failure, or localized flooding. While the earthworks are beyond the reach of even extreme riverine flood events, and the vegetated surfaces of most mounds and earthworks are very stable against rain damage, those earthen walls adjacent to steep ravines can be subject to undercutting and slippage—most notably at Fort Ancient.

The human-caused introduction of less-desirable invasive plant species, and decreased biodiversity, have also been accelerated by climate change. The naturalization of plants such as honeysuckle (*Lonicera maackii*), autumn olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*) has disrupted the native ecosystem. This has increased the threat of aggressive woody vegetation, with roots that are known to cause disturbance to archaeological resources.

Burrowing animals can also threaten below grade resources. Moles dig shallow tunnels that routinely cause merely aesthetic damage; groundhogs, however, have caused some notable damage to sub-surface resources at the Octagon, Great Circle, Hopewell Mound Group, and Fort Ancient.

Fire does not constitute a current threat in Ohio. No fires have occurred on any of the nominated sites during the past century, except for perhaps controlled brush fires set when the land was still owned by farmers. Controlled fires are not currently used as a method of vegetation management, since studies have shown that they may obscure magnetic anomalies detected through remote sensing, can introduce confusion into radiocarbon dating, and are very expensive.

(iii) Natural Disasters & Risk Preparedness

The only significant disaster-related risks to the Hopewell Ceremonial Earthworks are those of extreme weather. Besides heavy rains, which can trigger serious erosion, high winds caused by tornados and straight-line storms are a risk factor where mature trees are growing on the mounds and embankments. When uprooted, these trees cause damage to the fabric of the wall and its archaeological resources. Trees that are dying or diseased have an increased risk of this occurring.

The impacts of global climate change have been pronounced in central and southern Ohio. Although the inland location and temperate climate make these less dramatic than in many places, this region has seen an increase in extreme weather events. For example, the derecho of 2012 produced nearly 100-kilometer-per-hour straight-line winds, causing damage to an estimated one hundred trees at the Great Circle, ranging from lost limbs to the complete uprooting of mature trees. In many locations across the region, multiple "fifty-year" and "one-hundred-year" storms have occurred just in the past two decades. These increased rainfall and wind events increase the otherwise minor damage risks facing the Hopewell Ceremonial Earthworks.

At the National Park Service sites, a multi-disciplinary Cultural Landscape Report/ Environmental Assessment (described in Section 5) outlines a long-term plan and program to mitigate soil erosion using turf grass and native grassland cover, which is thought to be the best solution. Following the recommendation of this report, all lands in all park units are either mown in turfgrass or hayed as warm-season native grasses. This has resulted in earthwork stabilization and the prevention of burrowing animals, as well as encouraging migratory bird nesting. Maintenance is simplified, in part through relationships with local farmers in which they harvest the nutritious warm-season grasses in exchange for mowing. At Hopeton, Hopewell, and Seip, these grasslands are used as an interpretive tool to allow visitors to "see the earthworks" by creating a contrast between mown and unmown grass. These recent plantings are carefully monitored by National Park Service staff and seem to be ecologically stable thus far.

Among the Ohio History Connection sites, the Octagon and Great Circle Earthworks in Newark have been maintained for many decades under mown turf grass, with therefore no significant erosion impacts. Fort Ancient, however, due to its steep slopes, many ravines, and significant forestation (and resulting tree-falls) requires continuous monitoring of areas at risk of erosion and land slippage. So far these factors have not had serious impacts on the earthworks themselves. At all three sites, management plans stipulate that dead, dying, or diseased trees will be removed from earthwork walls before they potentially uproot, and new trees will not be planted nor allowed to grow on the earthworks.

Current Levels of Visitation

(iv)
Responsible Visitation at World Heritage Sites

Visitation statistics at the Hopewell Ceremonial Earthworks, to the extent they are known, are associated with the three principal facilities through which visitors arrive at the sites and become oriented to them (See also Section 5.h-i). These are the small museum at the Great Circle, the National Park's visitor center at Mound City, and the Ohio History Connection's American Indian Museum at Fort Ancient. Only at these three locations has it been possible to count visitors, as none of the other component sites in the series have staffing or facilities for regular visitor contact.

Mound City, Fort Ancient, and both Newark sites have been regional and national visitor destinations for many decades (See Section 2.b). Historical data show that some of these sites have had higher visitation numbers in the past, indicating that they can support it. The remainder of the sites have comparatively very few visitors currently, and therefore a large capacity to accommodate more.

Octagon & Great Circle Earthworks

Newark's Great Circle and Octagon Earthworks are both outdoor facilities with no admission fee, and multiple access points; it is therefore impossible to get precise visitor counts on a regular basis. The Octagon's history as a private golf course generally precluded much public access; conversely, the Great Circle acts as a public city park with many uncounted users on any given day. Nevertheless, the Ohio History Connection has decades of visitation numbers that record specific interactions with guests—visits to the museum at the Great Circle, school tours, special events, and golf-free open houses at the Octagon.

For the past 15 years, there has been a standardized method of counting by both month and visitor category. As with most Ohio History Connection sites, visitation at the Newark Earthworks peaks seasonally from late May to early September, and within the category of school visits in April, May, September, and October. During the "off peak" months, staff are on reduced hours or seasonally laid off and the ability to accurately count diminishes. Observationally, large numbers of people experience the grounds at the Great Circle year-round but in the absence of staff or controlled entry points it is not possible to count each visitor.

During a recent five-year period (2016 to 2020), an average of 63% of visitors to either of the Newark sites were in a generic free-admission category, while school tours made up 16%, and public programs or events accounted for 11% of the total visitation. Annual visitation at the Newark sites has not exceeded 6,500 per year in recent memory; given the large expanse of the sites, this presents no serious capacity issues.

Hopewell Culture National Historic Park

Among the five National Park sites in the series, only Mound City has visitor contact, making overall visitation estimates similarly challenging to measure. Generally, visitors begin at the Mound City visitor center, and then, to various extents, continue with self-guided visits to one or more among Hopeton, Hopewell, and Seip. (High Bank is a research preserve with only limited public access.) Visitation numbers have been recorded in a National Park data system since 1935. Since 2003, rangers at Mound City count visitors there, and use consistent methods to estimate average visit durations, and the extent to which visitors may also spend time at Hopeton and Seip. The number of visitors to Hopewell Mound Group is estimated on the basis of water usage at the rest rooms.

Based on these methods of estimation, visitation at the National Park sites is at sustainable levels. In 2019, there were 60,338 visitors, up from a pre-2013 pattern of around 40,000.

4.-**4** Visitors entering the gateway at Newark's Great Circle Earthworks.

There has been fluctuation, yet an overall steady rise in visitation since 1992 when the park was expanded. The highest numbers in Mound City's history were recorded in the mid-1970s (nearly 100,000), when it was the only unit of the park. Visitation is very seasonal at all of the units, with the most visits occurring in the mid-summer.

In planning and implementation at Hopewell Culture National Historical Park, visitor circulation, understanding, and enjoyment are constantly balanced against the effects on vegetation, wildlife, and cultural resource protection. This is outlined in the park's planning documents, in particular the Cultural Landscape Report/Environmental Assessment of 2016, mentioned above.

Fort Ancient

The number of visitors to Fort Ancient is more easily determined than at the Ohio History Connection sites in Newark, as there is a gated road access point, and an admission charge which is collected at the large museum facility. Since 2016, there have been between 19,000 and 24,000 annual visitors, the primary categories being adults (29%), school children (24%) and other children's groups (12%) such as scouts, day care groups, and summer camp attendees. As in Newark, visits to Fort Ancient peak seasonally from late May to early September, with school visits concentrated during April, May, September, and October.

Projected Levels of Visitation

The extent to which inscription on the World Heritage List may directly cause an increase in visitation at the Hopewell Ceremonial Earthworks is hard to quantify, as there are many variables taken into account in the literature on the subject. The nominated Property is near major population centers with thriving economies and good transportation, and it remains relatively unknown nationally and internationally—leaving room to increase its profile. These factors would indicate that some, perhaps considerable, increase might be expected.

In 2017, the Ohio History Connection commissioned an economic impact study to explore the likely tourism impacts following inscription. Conducted by Ohio University's Voinovich School of Leadership and Public Affairs, the study focused on possible impacts in the three counties where the sites are located—Warren, Ross, and Licking—and noted that levels of increase would be dependent on the nature and extent of marketing efforts, as much as anything else. Rather than projecting a percentage increase in visitation, the owners of the Property will coordinate marketing and visitor experience efforts, adopting a strategy of encouraging regional visitation, enhanced interpretation, and overnight tourists—rather than increased on-site numbers as such.

4.-**5** Visitors to Fort Ancient in the 1960s, near the North Overlook. (Ohio History Connection)

Carrying Capacity

Carrying capacity reflects the number of people who may visit a site without either damaging the resources or having a negative visitor experience. Establishing a carrying capacity includes taking into consideration the visitor experience (social) but also the physical capacity (number of parking spaces, square footage of buildings, number of amenities, etc.) and environmental factors (the natural resources' ability to resist and recover from the effects of visitors).

The history of these sites shows that they all have a carrying capacity well in excess of current visitation numbers. Both sites in Newark have had thousands of people on them during their varied recreational uses, without significant detrimental impact on the earthworks. During the peak visitation at Mound City in the 1970s, no adverse effects were noted as a result. Similarly, in the early records for Fort Ancient, visitation increased significantly from 15,000 in 1920 to 80,000 in 1936, when the site absorbed four times its current numbers.

Despite this historical evidence of the sites' larger visitor capacities, measures and monitoring will be put in place across the Property to minimize the social, physical, and environmental impacts of increased numbers of visitors.

Possible Deterioration Due to Visitor Pressure

It is accepted that all visitation will cause some resource degradation. Yet most of the nominated sites have hosted visitors for decades—in the case of Mound City, Fort Ancient, and the earthworks in Newark, for over a century. Threats from normal visitation, even with increased numbers, will be minimal. Use of the Property is not expected to change. Deterioration due to visitor impacts will be monitored, with an emphasis on keeping visitors off the earthworks themselves.

Management practices to monitor future deterioration from increased visitation, considered over and above what is thought acceptable without permanently damaging the site, will be done through existing preservation and protection methods already in place. Additional monitoring measures will be initiated in the event that visitation begins to reach or exceed carrying capacity.

(v)
Number of Inhabitants Within the Property & the Buffer Zone

There are no permanent residents within the Boundaries of the Hopewell Ceremonial Earthworks. Occupied private residences exist within only six of the Buffer Zones, as follows:

The Permanent Residents
within the Boundaries of Hopewell Ceremonial Earthworks

	Property	Buffer Zone
Octagon Earthworks	0	211
Great Circle Earthworks	0	162
Hopeton Earthworks	0	0
Mound City	0	0
High Bank Works	0	3
Hopewell Mound Group	0	3
Seip Earthworks	0	3
Fort Ancient	0	4
Totals	**0**	**386**

Section 5:
Protection & Management of the Property

5

"...Indigenous mapping practices...(unlike Western cartography) are 'process-oriented,' 'dispersed,' and 'embodied' so that visitors—either in the ancient past or in the future—are themselves 'mapmakers' who may contribute to a continually regenerative mapping process that was begun by earlier generations..."

Margaret Wickens Pearce
Cartographer
Rockland, Maine
Citizen Band Potawatomi
(From: Jones and Shiels, *The Newark Earthworks: Enduring Monuments, Contested Meanings*, 2016)

5.a Ownership

The eight components of the Hopewell Ceremonial Earthworks Property are owned by three separate entities: the United States Department of the Interior's National Park Service, the State of Ohio, and the Ohio History Connection (a private non-profit corporation acting on behalf of the State of Ohio).

State of Ohio & Ohio History Connection

Ohio state law (Ohio Revised Code) Section 149.30 states that "Ohio History Connection, chartered by this state as a corporation not for profit to promote a knowledge of history and archaeology, especially of Ohio, and operated continuously in the public interest since 1885, may perform public functions as prescribed by law." These functions include "creating, supervising, operating, protecting, maintaining, and promoting for public use a system of state memorials." Some sites in this system are owned by the State of Ohio and others are owned directly by the Ohio History Connection and operated in the public trust on behalf of the state. Among the nominated components, Fort Ancient is owned by the State of Ohio and operated by Ohio History Connection, while the Octagon and Great Circle Earthworks are owned and operated by the Ohio History Connection.

National Park Service

The National Park Service Organic Act of 1916 established the National Park Service, a bureau within the United States Department of the Interior, giving it the authority to manage designated areas. It establishes the authority of the United States government, through its Department of the Interior and National Park Service, to protect and manage these lands. The following components are owned by the United States Department of the Interior's National Park Service, as units of Hopewell Culture National Historical Park: Hopeton Earthworks, Mound City, High Bank Works, Hopewell Mound Group, and Seip Earthworks.

5.b Protective Designations

All of the nominated components are protected under one or more of the following three forms of federal and state designation, along with related and applicable laws, and as indicated in the table on page 281.

National Historical Park Status

Hopewell Culture National Historical Park, a unit of the National Park Service, U. S. Department of the Interior, consists of six units located within Ross County, Ohio, USA. These include five of the nominated components—Hopeton Earthworks, Mound City, High Bank Works, Hopewell Mound Group, and Seip Earthworks—plus a sixth unit not included in this nomination called Spruce Hill Works (discussed in Section 3.2, the Comparative Analysis).

5.-**1** Entrance signage at Mound City

The Mound City Group National Monument was established under the Antiquities Act by presidential proclamation, on March 23, 1923. Administrative boundary adjustments added several small adjacent parcels over the course of the next several decades. The U. S. Congress expanded the boundary of the national monument to include the Hopeton Earthworks unit by Public Law 96-607 in December 1980. In 1992, the U. S. Congress enacted Public Law 102-294, adding more lands at Hopeton Earthworks, plus the High Bank Works, Hopewell Mound Group, and Seip Earthworks, and renamed the expanded park as Hopewell Culture National Historical Park. (The text of these laws is annexed to this nomination.)

The National Park Service Organic Act of 1916 is the primary legal protection for these designated areas. It requires the National Park Service to manage units in the National Park System "to conserve the scenery and the natural and historic objects and wildlife therein, and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations."

Ohio State Memorial Status

The Ohio History Connection, under its original name as the "Ohio State Archaeological and Historical Society," was incorporated in 1885. Three years later, the State of Ohio began appropriating funds to the organization to help it procure and maintain a statewide system of historic memorials. The three nominated components which it owns or operates were added as State Memorials—Fort Ancient (Ohio's first State Memorial) in 1891, and the Newark Earthworks in 1933. The latter includes both the Octagon Earthworks and the Great Circle Earthworks, as well as a third component, the Wright Earthworks, which is not included in this nomination because only a small fragment remains (see Section 2.b, pages 139–140).

5.-**2** Entrance sign at Newark's Great Circle Earthworks.

Ohio Revised Code 149.30 (1965, revised 2018) establishes the primary legal protection of Ohio State Memorials, and places them under the management of the Ohio History Connection. It formalizes the terms of the Ohio History Connection's authority to administer these historic sites on behalf of the state, and mandates its public function to protect and manage "structures, earthworks, and monuments in its care." The Ohio History Connection holds title to some of these properties and the State of Ohio holds title to others, and all are held in public trust for the benefit of the State of Ohio and its residents. The statute requires that if these properties are ever to be transferred, the Ohio General Assembly must provide its approval.

Additional Protective Laws

The components included in the Hopewell Ceremonial Earthworks are subject to a variety of legal protections resulting from both federal and state laws, regulations, and policies. Comprehensively, these legal and policy frameworks protect the sites from resource vandalism and damage, and in some cases provide measures to prevent nearby development from having an adverse effect. The table on page 281 indicates which of these protective laws apply to each component of the proposed Property.

Federal Laws

Each of the eight nominated components is protected under one or more of the following federal laws:

The American Antiquities Act of 1906 (54 United States Code 320301–320303) established for the first time that archaeological sites on federal lands are important public resources. It also authorizes the President of the United States to designate National Monuments to help protect important cultural and natural sites located on public lands.

The Historic Sites, Buildings, Objects, and Antiquities Act of 1935 (54 United States Code 320101, also known as the "Historic Sites Act of 1935") declares it a national policy to preserve historic sites and objects of national significance and provides procedures for designation, administration, and protection of such sites. National Historic Landmarks are designated under the authority of this act by the Secretary of the United States Department of the Interior as historic places with exceptional national significance. Each one represents an outstanding aspect of American history and culture. Four of the components in this serial nomination were designated as "National Historic Landmarks" (NHLs) in 1964—the Hopeton Earthworks, Fort Ancient, the Octagon Earthworks, and the Great Circle Earthworks. (The latter two sites were both included in a combined NHL designation of the Newark Earthworks.)

The National Historic Preservation Act (NHPA) of 1966 (54 United States Code 300101-307108) requires federal agencies to evaluate the consequences of all federally funded, licensed, or permitted projects on historic properties, which includes all of the components of this serial nomination. Section 106 of the NHPA and its implementing regulations lay out review procedures that ensure historic properties are considered in federal planning processes, specifying that public views and concerns about historic preservation issues must be considered when making final project decisions. It further specifies the role of the state historic preservation officer (SHPO) in advising and assisting federal agencies in this process.

Section 110(f) of the NHPA requires that federal agencies considering undertakings that may directly and adversely affect a National Historic Landmark "to the maximum extent possible undertake such planning and actions as may be necessary to minimize harm to the landmark," and invite the Advisory Council on Historic Preservation and the Secretary of the Interior to participate in any consultation.

The National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321 et seq.) established the country's environmental policies. It requires every federal agency to prepare an in-depth study of the impacts of any major federal action that may have a significant impact on the environment. Using the NEPA process, agencies evaluate the environmental and related social and economic effects of their proposed actions, along with alternatives to those actions. They must make diligent efforts to involve interested members of the public in review and comment, and make the resulting assessments an integral part of their decision-making process. The range of actions covered by NEPA is

broad, including decisions on permit applications, federal land management actions, and the construction of highways or other publicly-owned facilities. NEPA is implemented through regulations of the Council on Environmental Quality (CEQ).

The Archeological and Historic Preservation Act (AHPA) of 1974 (54 United States Code 312501-312508) helps protect archaeological resources that may be impacted by projects executed, funded, or licensed by the federal government. It requires that federal agencies provide for "...the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of...any alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program."

The Archaeological Resources Protection Act (ARPA) of 1979 (16 United States Code 470aa-470ll) applies to federal lands. It prohibits damage or defacement, in addition to unpermitted excavation or removal. Also prohibited are selling, purchasing, and other trafficking activities whether within the United States or internationally. Section 6(c) prohibits interstate or international sale, purchase, or transport of any archaeological resource excavated or removed in violation of any state or local law, ordinance, or regulation.

American Indian Religious Freedom Act (AIRFA) of 1978 (42 United States Code 1996) is one of two federal laws specifying the protection of the rights of Indigenous Peoples. This law establishes, as the policy of the United States, the freedom of American Indians to exercise their traditional religions with respect to their associated sacred places, ceremonies, objects, and heritage. It also strengthens requirements that tribal values are taken into account in consideration of actions under the NHPA.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 United States Code 3001–3013) describes the rights of Native American lineal descendants, Indian tribes, and Native Hawaiian organizations with respect to the treatment, repatriation, and disposition of Native American cultural items with which they can show a relationship of lineal descent or cultural affiliation. Such items include human remains, funerary objects, sacred objects, and objects of cultural patrimony.

A second major purpose of NAGPRA is to provide greater protection for Native American burial sites and more careful control over the removal of Native American cultural items on federal and tribal lands. The statute requires that Indian tribes or Native Hawaiian organizations be consulted whenever archaeological investigations encounter, or are expected to encounter, Native American cultural items, or when such items are unexpectedly discovered on federal or tribal lands. Excavation or removal of any such items also must be done under procedures required by the Archaeological Resources Protection Act (Sec. 3 (c)(1)). This NAGPRA requirement is likely to encourage the in situ preservation of archaeological sites, or at least the portions of them containing burials or other kinds of cultural items.

State of Ohio Laws

Ohio Revised Code 155.05 (1953) and 155.99 (1974) establish that "No person shall willfully violate a reasonable rule governing the access to prehistoric parks or historic grounds made by a person, association, or company owning or having custody of such parks or grounds nor shall any person injure or mark structures, trees, or plants therein. Whoever violates this section is liable to such owners or custodians for damages." Violating this law is established in 155.99 as a fourth-degree misdemeanor.

Ohio Revised Code 149.53 (1976, revised 2015) requires "all departments, agencies, units, instrumentalities, and political subdivisions of the state" to coordinate with the State Historic Preservation Office in the preservation of archaeological and historic sites when planning and executing public works.

Ohio Revised Code 149.54 (1983) protects lands owned, controlled, or administered by the State of Ohio, or any political subdivision of the state, or dedicated under state law as an archaeological preserve, from unauthorized archaeological excavation or survey. It also requires a permit signed by the Executive Director of the Ohio History Connection for any survey or salvage work on public lands. Violations are a second-degree misdemeanor.

Local Laws

City of Newark Zoning Code, Ordinance 08-33 (2009) The City of Newark's Zoning Code establishes restrictions on property use and development. The Octagon Earthworks and a portion of the Great Circle Earthworks lie within the boundary of the City of Newark, so their adjacent buffer zones are subject to city zoning. The areas of the Octagon Buffer Zone (See Fig. 5-**3**) and Great Circle Buffer Zone (See Fig. 5-**4**) that lie outside of Ohio History Connection property are predominantly zoned for single-family residential use (yellow and orange areas). These allow for no more than four free-standing detached dwellings per acre (about 10 per hectare), with maximum heights of 2.5 stories or 30 feet (9.1 meters). The few lots zoned Medium Business (red) and General Commercial (purple) are subject to similar height and/or volume restrictions.

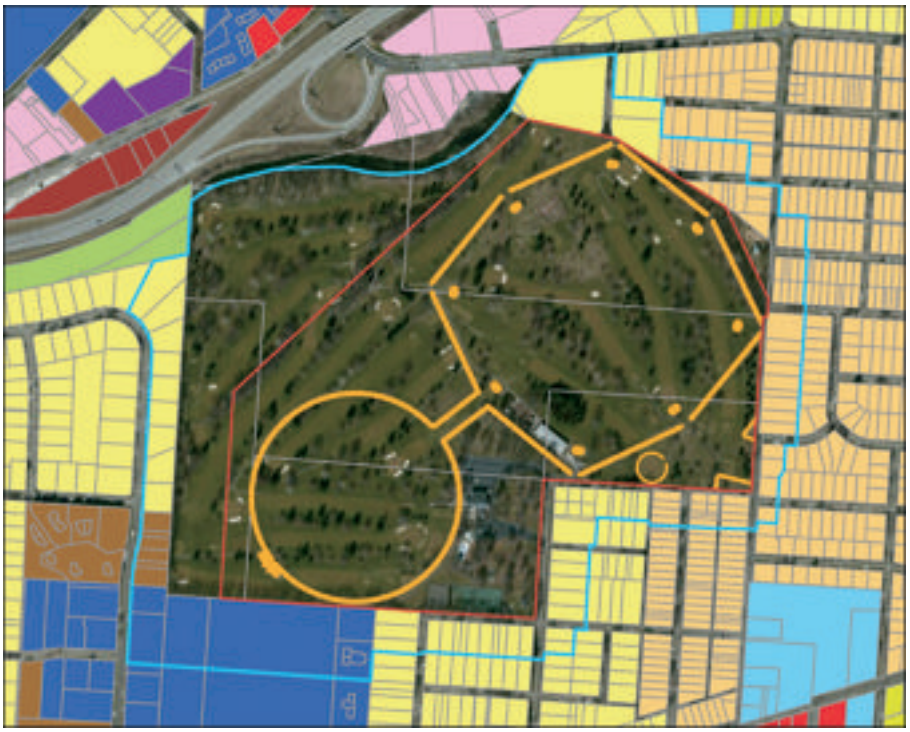
Outside the Ohio History Connection lands at the southwestern corner of the Octagon, additional zones are "Multi Family Residential" (brown) with a maximum building height of 45 feet, and "General Office" (dark blue, the Licking Memorial Hospital property). The northwestern perimeter of the site is well buffered by the wooded scarps of Raccoon Creek.

Codified Ordinances of the City of Heath, Ohio: Part 11, Title Five: Zoning Districts and Regulations, Chapters 1161 & 1163 The southwestern area of the Great Circle Buffer Zone (See Fig. 5–**5**) falls within the City of Heath, and is subject to its zoning regulations. All structures built within the Buffer Zone are subject to height restrictions. Areas zoned Single Family Residential (yellow) and General Business (light green) limit building heights to 30 feet (9.1 meters), and 50 feet (15.2 meters), respectively.

5.-**3** Newark zones adjacent to Octagon Earthworks.

5.-**4** Newark zones adjacent to Great Circle Earthworks.

- Low Density Single Family Residential
- High Density Single Family Residential
- Multi-family Residential
- General Office
- Medium Business
- General Commercial



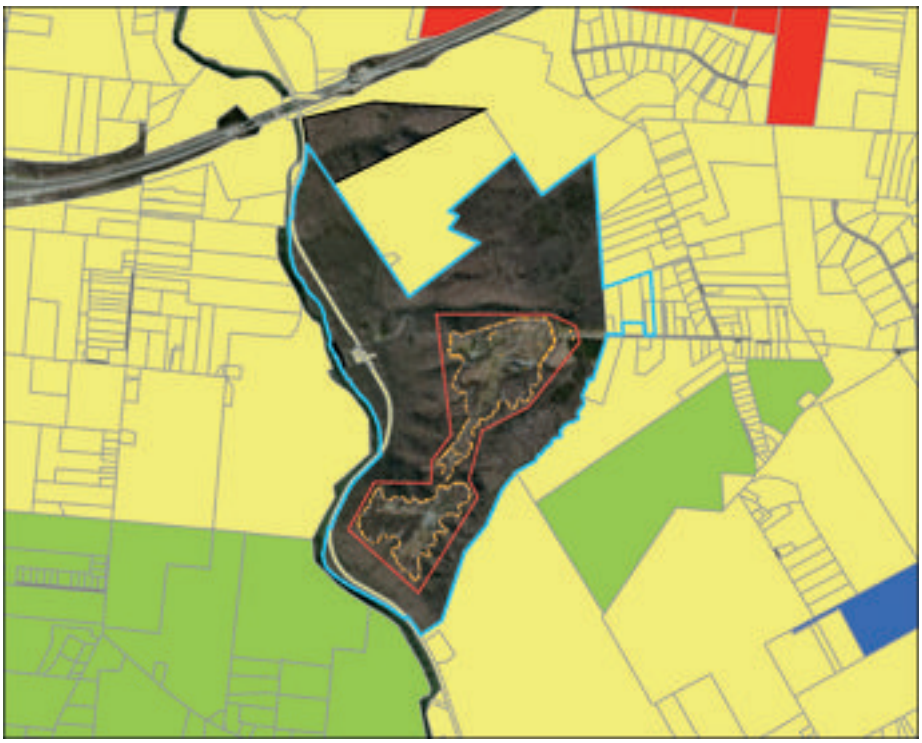
5.-**5** Heath residential zones adjacent to the Great Circle Earthworks.

Single Family Residential
General Business

The Great Circle Overlay District (GCOD) (2017) (Codified Ordinances of the City of Heath, Ohio: Part 11, Title Five: Zoning Districts and Regulations, Chapter 1131) This ordinance establishes a conical zoning overlay that limits the height of improvements in three zones (residential, commercial, manufacturing) within the City of Heath, and within a 1500 foot (457.2 meter) radius of the center of the Great Circle Earthworks, to a maximum of 16 to 20 feet (4.9 to 6.1 meters) in height. This is calibrated to protect the viewshed from inside the earthwork enclosure, and for that reason is more limiting than the general height restrictions that would otherwise be in effect.

5.-**6** Map of southern Warren County delineating Low-Density Residential Zoning in effect adjacent to Fort Ancient.

Rural Residential
Single Family Residential



Warren County Zoning Law. The area of Fort Ancient within the nominated Property boundary is zoned as Rural Residential (minimum lot size: 2 hectares). All portions of the proposed Buffer Zone are zoned either Rural Residential or Single Family Residential (minimum lot size: 0.8 hectares). This zoning ensures that the rural character of the setting will be maintained, and the viewshed will be protected from higher-density development.

Site Designations & Protections

(date of designation or "•" if applies to site)

	Octagon Earthworks	Great Circle Earthworks	High Bank Works	Hopeton Earthworks	Mound City	Hopewell Mound Group	Seip Earthworks	Fort Ancient
National Historic Landmark (NHL) designation	19 July 1964	19 July 1964		19 July 1964				19 July 1964
National Historical Park designation			27 May 1992	27 May 1992	27 May 1992	27 May 1992	27 May 1992	
Antiquities Act of 1906				•	•			
Historic Sites Act of 1935	•	•	•	•	•	•	•	•
National Historic Preservation Act (NHPA, 1966)	•	•	•	•	•	•	•	•
National Environmental Policy Act (NEPA, 1969)	•	•	•	•	•	•	•	•
Archaeological and Historic Preservation Act (AHPA, 1974)	•	•	•	•	•	•	•	•
Archaeological Resources Protection Act (ARPA, 1979)			•	•	•	•	•	
American Indian Religious Freedom Act (AIRFA, 1978)	•	•	•	•	•	•	•	•
Native American Graves Protection and Repatriation Act (NAGPRA, 1990)	•	•	•	•	•	•	•	•
Ohio State Memorial designation	1933	1933						1891
Ohio Revised Code 149.30	•	•						•
Ohio Revised Code 149.53	•	•						•
Ohio Revised Code 149.54	•	•						•
Ohio Revised Code 155.05 and 155.99	•	•						•
Ohio Revised Code 5.073	7 June 2006	7 June 2006						

5.c Means of Implementing Protective Measures

Implementing Federal Laws

The agencies responsible for managing the Hopewell Ceremonial Earthworks work collaboratively to ensure that preservation activities are carried out to appropriate standards. The National Park Service and the Ohio History Connection have oversight at these sites as described above in Section 5.b. In addition, the National Historic Preservation Act (NHPA) established the State Historic Preservation Offices (SHPOs) that review and uphold federal standards for preservation projects that are federal undertakings or use federal funds. Both the National Park Service and the Ohio History Connection are subject to SHPO review for eligible projects, which include all of the National Park Service components, and any project on or near Ohio History Connection lands that uses federal funds or requires federal permitting, and will materially or visually adversely affect the Property.

The National Park Service has a Programmatic Agreement that provides for coordination among the National Park Service, the federal Advisory Council on Historic Preservation, the National Conference of State Historic Preservation Officers, federally recognized Indian tribes, and Native Hawaiian organizations, in order to implement the review process of the Act (Section 106) on lands managed by the National Park Service.

More generally, the NHPA provides for heightened consultation requirements for those properties formally designated as National Historic Landmarks by the United States Secretary of the Interior. Any federal agency must consider the potential effect of its actions on NHLs, working in consultation with the applicable state government. Effects can be direct or indirect and can include: physical destruction or damage; alteration; relocation; change in the character of the property's use or setting; introduction of incompatible visual, atmospheric, or audible elements; neglect and deterioration; and transfer, lease, or sale of a historic property out of federal control without adequate preservation restrictions.

The United States' Code of Federal Regulations (36 CFR 65.7) directs the National Park Service regional offices to monitor National Historic Landmarks to determine whether landmarks retain their integrity, to advise owners concerning accepted preservation standards and techniques, and to update administrative records on the properties.

For actions on lands managed by the National Park Service that are deemed to be routine maintenance or replacement of materials in kind, the National Park Service completes an internal review process called an "Assessment of Effect" and records the action in internal documentation. If the action is deemed to potentially adversely affect a historic property, then a full consultation in accordance with Section 106 of the National Historic Preservation Act is required. The National Park Service also conducts a complete inventory of cultural resources as part of its compliance with Section 110 of the National Historic Preservation Act.

Other federal or state laws protecting the environment, like the National Environmental Policy Act (NEPA), may also provide collateral protection to historic properties and their settings.

Implementing State Laws

State of Ohio laws including Ohio Revised Code 155.05 and 155.99 apply to the Octagon, Great Circle, and Fort Ancient Earthworks. The local law enforcement agency that holds territorial jurisdiction (city police or county sheriff) enforces these laws.

Ohio Revised Code 149.53 governs Ohio History Connection's care of historic sites on behalf of the State of Ohio. In alignment with this law, Ohio History Connection engages the State Historic Preservation Office (SHPO) to review repair or improvement work that could affect cultural resources within its state historic site network. If SHPO determines that the action may adversely affect historic resources, full consultation begins and may result in changes to project scope or approach, mitigation, or project termination. Because all nominated components have cultural significance to federally recognized American Indian tribes, they are invited into consultation on these potential adverse effects.

Implementing Local Laws

Local Zoning laws apply to some portions of the nominated Property and Buffer Zone, as described above in Section 5.b. The City of Newark (Octagon and Great Circle), City of Heath (Great Circle), and Warren County (Fort Ancient) have zoning laws, cited above and annexed to this nomination. In Ross County, all development is subject to planning review by the county's Planning Commission.

Zoning laws enacted by the local level of government guide development by determining the uses that are allowed in different locations and by restricting the character of improvements, including the height and size of structures. Zoning laws divide geographic areas into different "zones" or "districts," each with its own set of rules that determines what can be built, and at what size and density. Zoning law is the underlying land-use control in most urban and a few rural areas of the United States. Local governments establish and enforce zoning over privately owned property through the approval of building permits.

Though the primary purpose of zoning is to segregate uses that are thought to be incompatible, in practice, zoning is used as a permitting system to prevent new development from harming existing residents or businesses. It applies to all the properties in a given area, and is not easily changed. Zoning may regulate the kinds of structures or activities that will be acceptable on particular properties (residential vs. industrial, for example), and the densities at which those activities may be performed (individual homes on large lots vs. high-rise apartment buildings). The height of buildings, the amount of space structures may occupy, and the location of a building on the property are also regulated. Zoning laws vary from one city or town to another, and local governments have considerable latitude to employ special zones for particular purposes.

5.d Existing Plans Related to Municipality & Region

Warren County Comprehensive Plan (2011)

The county's comprehensive plan addresses goals, objectives, and recommendations for several categories of infrastructure and development, including Land Use, Housing, Capital Improvements Planning, Economic Development, Transportation, and Parks & Open Space. Several of its overall goals are generally applicable to the preservation of viewsheds and the rural character of the Fort Ancient setting. It includes the protection of steep slopes and wildlife habitat, both of which are abundant at and around Fort Ancient, and the preservation of open space. General land conservation is encouraged, including coordination with entities working to preserve the Little Miami Scenic River that surrounds a portion of Fort Ancient.

The county's Comprehensive Plan includes a "future Land Use Plan" that projects the environs of Fort Ancient to remain as either "Park and Recreational Open Space" (including the site itself and much of the opposite river bluff), or "Agricultural Rural Residential" (including Buffer Zone areas to the northeast).

Scenic River Designation

The Little Miami is designated a State and National Scenic River, denoting that it and its immediate environs retain much of their natural character, with shorelines largely undeveloped, and adjacent valley corridors substantially forested. These traits are strongly evident in the vicinity of Fort Ancient. Designation requires the protection of specific scenic, recreational, geologic, fish and wildlife, historical, or cultural values. Federal regulatory authority (through the Midwest Region Rivers Coordinator of the National Park Service) ensures the preservation and, when possible, the improvement of these values.

5.e Property Management Plan or Other Management System

Coordinated management processes for the Hopewell Ceremonial Earthworks are ensured by a combination of plans and agreements between the two owner agencies, all of which are summarized below. The Ohio History Connection has individual site management plans for the Newark Earthworks (covering the Octagon and Great Circle, dated 2003 with a 2021 Addendum), and for Fort Ancient (completed 2021), as well as other agency-wide policies and directives. The five nominated components within Hopewell Culture National Historical Park are included in management and planning documents covering the park as a whole. The two agencies have been collaborating closely for many years, and currently maintain an on-going Cooperative Agreement providing a framework for coordinated approaches to site management.

In late 2015, an ICOMOS Advisory Mission visited the Hopewell Ceremonial Earthworks. The Report, authored by Margaret Gowen, included recommendations which have been incorporated into the relevant management documents described here.

National Park Service Management

Hopewell Culture National Historical Park is a unit of the National Park System, managed by the National Park Service, part of the United States federal government. Overall guidance for preserving and protecting units of the National Park System is provided through a hierarchy of long-standing policies, guidelines, and directives, including the 2006 NPS Management Policies. The Management Policies include direction on a variety of issues that are important to the preservation of World Heritage sites as well as National Park units, including resource protection, interpretation and information services, and visitor management.

The following existing park plans further amplify aspects of management of the five nominated components that are part of the Hopewell Culture National Historical Park.

General Management Plan & Environmental Assessment (1997)

The purpose of this plan is to ensure that the park has a clearly defined direction for resource preservation and visitor use. This basic document for decision making was developed in consultation with service-wide program managers, park staff, interested parties, tribal partners, and the general public. The General Management Plan is based on analysis of existing and potential resource conditions and visitor experiences, environmental (including natural, cultural, and socioeconomic) impacts, and costs of alternative courses of action.

The General Management Plan envisions the highest levels of visitor use and support facilities at the Mound City Group, Hopewell Mound Group, and Seip Earthworks, taking advantage of existing facilities and connections to transportation corridors. Preservation, research, education, and low-intensity visitor use are planned emphases at the Hopeton and High Bank Works. Management zones define in general terms the types and levels of development, use, and preservation in different areas of the park units, and ensure that management activities are consistent with the park's identified purpose, vision, and resource values. The zones are based on resource inventories and planning issues; for each zone, levels of intensity are defined for visitor use, resource management, and development. The five management zones are: 1/ Limited Access: areas for preserving archaeological resources and cultural landscapes; 2/ Natural Resource: areas for preserving and interpreting natural resources; 3/ Pedestrian: areas for visitor use for learning about the earthworks; 4/ Educational: areas for locating facilities for visitor use and orientation; and 5/ Special Use: areas to accommodate Native American religious activities. The plan also directs that any potential new intrusions or impacts be resisted by the park with assistance from partners.

Interpretation and visitor use programs are designed to educate the public about the daily lives, contributions, perceived values, and interactions of the earthworks' builders with other peoples and the environment around them. Engagement with the local community and tribal leaders seeks to create a sense of stewardship for these and other sites, and to obtain their input on recreation, transportation, and tourism; and park staff are to make artifacts available, as appropriate, for study, education, and display. Other actions directed in the plan include land acquisition for resource protection (such as the areas at High Bank Works and the Seip Earthworks identified in this document), completion of archaeological and historic resource inventories, development of monitoring programs, redesign of waysides and exhibits, and installation of resource protection measures such as fences and gates.

Many actions in the 1997 General Management Plan have been completed. Some are ongoing activities; others are in the planning stages. Park managers are currently conducting a comprehensive planning portfolio review to define additional resource protection strategies and visitor experience enhancements.

Cultural Landscape Report & Environmental Assessment (2016)

The Cultural Landscape Report (CLR) is the primary document for guiding management and preservation of cultural landscapes within the nominated units of Hopewell Culture National Historical Park. The intent of the CLR is to provide comprehensive and integrated guidance reflecting the mission of the National Park Service, ensuring that long-term preservation, stewardship, and visitor experience objectives are met to the maximum extent practicable. It focuses on preserving extant below- and above-grade archaeological features, and clearly delineating those features and adjoining spaces through active vegetation management. The CLR presents an in-depth description of the history, evolution, and significance of the properties to enable informed and thoughtful stewardship by park managers. It provides an inventory and assessment of existing conditions, an evaluation of significance and integrity, and most importantly, recommendations for future landscape treatment. Treatment recommendations are based on preservation and interpretation goals, and include management guidelines and detailed site plans.

The overall treatment approach is to take actions that assist the visitor in seeing and understanding the extent and architecture of the earthworks through selective interpretive mowing. Where possible, areas inside earthwork enclosures are maintained in low-mown grasses; taller grass is grown on the earthwork walls themselves to enhance visibility. Native warm-season grasses are cultivated in areas surrounding the earthworks. Grass that is regularly mown or hayed prevents erosion, provides year-round access to archaeological resources for research, and resists invasive plants. The CLR also emphasizes a proactive approach to land acquisition required to preserve resources, stabilization and repair to earthworks when needed, and removal of non-contributing structures as appropriate to further enhance the visitor experience.

Ohio History Connection Management

As a 501(c)3 non-profit organization, the Ohio History Connection is governed by a Board of Trustees that holds legal authority and oversight for the corporation. Some of these Trustees are appointed by the Governor of the State of Ohio, and the remainder are elected by the organization's membership. The Trustees set organizational policy and hire and supervise an Executive Director, who in turn leads the organization's administration and hires professional staff. The Board of Trustees has the authority to approve Historic Site Management Plans, reflecting a commitment to the plans' conclusions, recommendations, and funding. The Ohio History Connection has developed a general Management Plan for each component of the Property that it owns or operates, through a process involving both internal and external stakeholders. Management Plans provide an overview of each site's history, the cultural and natural resources it protects, general management practices, and visions and recommendations for the future.

Historic Site Management Plan for Newark Earthworks State Memorial (2003)

This plan includes the Octagon Earthworks and Great Circle Earthworks (as well as the Wright Earthworks, not included in this nomination). A summary of the ancient and modern history of the site is followed by the management framework (including mission, vision, and goals); management strategies and site access; the preservation and treatment plan for the site's cultural resources; a vision for future research; interpretive goals, audiences, and objectives; and processes for implementation, including funding. In this plan, the Ohio History Connection acknowledges that the Newark Earthworks are nationally and internationally significant, and of spiritual importance to many American Indian people today. The plan asserts the importance of managing the site to "engage, involve, and partner with community stakeholders such as Native Americans, archaeologists, and educators in all aspects of the operation of the site." It also establishes the intention to "develop programs, facilities, and access…that are commensurate with the site's significance," and establishes four main site management goals: 1/ to preserve the earthworks' landscapes as closely as possible to their original state, 2/ to increase public access, especially to the Octagon Earthworks, 3/ to educate the public on the site's history and global significance, and 4/ to advance a collaborative research program for the sites.

The plan also establishes maintenance and preservation priorities and practices, such as minimizing foot traffic on the earthworks, and managing trees to prevent damage to the earthen walls. It calls for regular condition assessments and associated treatments. Of utmost importance, the plan establishes standards and procedures in the event of intentional and unintentional ground disturbances in order to protect archaeological resources. It also establishes interpretive priorities, including updated site signage.

Addendum to Newark Historic Site Management Plan (2021)

The Ohio History Connection will prepare a new Management Plan for the Newark Earthworks by 2023, but in the meantime has developed an addendum to the 2003 plan that provides essential updates. This addendum, annexed to this nomination, notes where priorities for the Great Circle and Octagon Earthworks have been achieved, are in process,

or have changed since 2003. These updates include progress toward increasing public access to the Octagon Earthworks. The addendum includes a vision and priorities for enhancing the authenticity of the Octagon, in alignment with its Outstanding Universal Value, by removing golf course elements and undertaking landscape and vegetation restoration in collaboration with American Indian tribal nations.

Fort Ancient Management Plan (2021)

This plan establishes Ohio History Connection's overall vision, goals, and management framework for the site, as well as methods for their implementation. It details the site's ancient and modern histories, and those histories' implications for preservation today. The plan describes Fort Ancient's existing site protections, and opportunities to increase the protection of both the site and its rural setting, which is integral to the visitor experience. As its primary management goal, the plan prioritizes the protection of the characteristics that contribute to the site's Outstanding Universal Value. To protect those characteristics and improve the visitor experience, the plan identifies six major recommendations with treatment options: 1/ to preserve and protect cultural resources, 2/ to strengthen site buffers and protections, 3/ to actively protect the site's viewshed, 4/ to enhance visitor flow and traffic safety, 5/ to minimize visual intrusions and help restore the authentic visual landscape, and 6/ to prioritize development of a comprehensive research plan.

Of these, Point 5 in particular addresses the principal recommendations offered for the site in the 2015 ICOMOS Advisory Report. Like the Newark Earthworks Management Plan, this plan addresses the importance of vegetation management to minimize the threat of tree-falls. It also discusses the site's visitor carrying capacity and balancing public engagement with the site against over-visitation.

Ohio History Connection American Indian Policy (2019)

This policy document acknowledges that Native people have thrived in the lands now called Ohio for at least 15,000 years. The Ohio History Connection seeks to honor that history with this policy, outlining how the organization will conduct itself and how it will engage federally recognized tribal nations.

Collaborative Management System

In 2008, when the Hopewell Ceremonial Earthworks were added to the United States Tentative List for World Heritage, a collaborative Steering Committee began meeting regularly to administer the preparation and nomination process. The core of this group was composed of key leaders and experts from Hopewell Culture National Historical Park and the Ohio History Connection, together with other experts and stakeholders from related management, interpretive, and community entities (museums and universities, towns and counties, preservation and Indigenous groups, among others).

The more formalized administrative structure that has emerged from those initial efforts consists of: 1/ the World Heritage Ohio Executive Committee, which has overseen all aspects of the preparation of this nomination, and will continue in a coordinating role after inscription; 2/ a Cooperative Agreement specifying the framework for the coordination of activities between the National Park Service and the Ohio History Connection; and 3/ the World Heritage Ohio Ambassadors—stakeholders with expertise and connections to support the Property beyond the two owner agencies, including representatives and citizens of federally recognized American Indian tribal nations.

Representative accomplishments of these inter-agency teams over the past decade are described below, and demonstrate a clear history of effective, collaborative work and shared dedication to the many facets of the Hopewell Ceremonial Earthworks and their management.

World Heritage Ohio Executive Committee

This core team manages the collaboration between the two owner agencies and with the broader stakeholder group, the World Heritage Ohio Ambassadors. The Executive Committee in various forms has met for over ten years, and consists of representatives from Hopewell Culture National Historical Park, the Ohio History Connection, and one representative of the larger Ambassadors group. As of the time of this nomination, the roles represented are:

- Superintendent, Hopewell Culture National Historical Park
- Director of Historic Sites and Museums/World Heritage Director, Ohio History Connection
- Director of Community and Government Relations, Ohio History Connection
- Director of Cultural Resources, Ohio History Connection
- Chair, World Heritage Ohio Ambassadors

The Executive Committee meets monthly, or more often as needed, to share information and coordinate efforts across all eight nominated components and solicit participation and feedback from a variety of stakeholder groups and experts. The Committee collaborates on items necessary for and beneficial to the coordinated management of the Property. This Committee has more than a decade of informal collaboration history, including the development of this nomination dossier. In addition, the Committee upholds a strong commitment to engaging American Indian tribal nations and local stakeholders in the series' promotion and protection.

The Ohio History Connection coordinates the Committee's work by designating staff to fulfill needed roles and tasks, within the parameters of its Cooperative Agreement with Hopewell Culture National Historical Park. These roles and tasks include managing committee logistics, processes, and record-keeping; hiring and supervising consultants; and communicating with and facilitating the work of the Ambassadors.

The Executive Committee serves as a coordinating body only. The National Park Service's Hopewell Culture National Historical Park and the Ohio History Connection each retain full management control over the series components for which federal or state legislation, respectively, establishes their authority. Each organization maintains appropriate management plans and other guiding documents for the components under their purview and abides by relevant federal, state, and local laws, ordinances, orders, and regulations.

The World Heritage Ohio Executive Committee performs its functions by:

- Holding monthly coordinating meetings
- Providing the primary point of contact for the State Party authorities
- Convening quarterly meetings of the World Heritage Ohio Ambassadors to update these key stakeholders on public and advocacy outreach, new research, and funding needs
- Coordinating Property-wide efforts for interpretive and visitor experience planning and implementation
- Promoting and enhancing the Property in collaboration with other organizations to share with the public the Outstanding Universal Value of the series and each component
- Supporting research at the component sites, and coordinating public outreach and stakeholder engagement
- Sharing between the two owner agencies any research results, monitoring data, and best practices for earthwork care and maintenance
- Maintaining for the use of the Executive Committee and Ambassadors a shared presentation about the Property and its Outstanding Universal Value, with optional emphases on the individual sites and various stakeholder interests

Cooperative Agreement

In 2019, the longstanding, informal collaboration between Hopewell Culture National Historical Park and the Ohio History Connection was formalized with the execution of a Cooperative Agreement for World Heritage collaboration. It specifies areas of shared work and responsibility, communication protocols, and financial considerations. The current agreement is limited to five years, but the organizations intend to renew it perpetually.

World Heritage Ohio Ambassadors

The World Heritage Ohio Ambassadors is a stakeholder group that helps achieve collective goals for the Property by helping build public participation and input and, in some cases, by offering specialized expertise. The Ambassadors play a key role by providing stakeholder input into and support for the coordinated management of the Property, and supporting communication and involvements with educational, business, and governmental entities.

The Ambassadors include representatives of many organizations as well as individuals who are deeply committed to preserving and promoting the Property, and who may possess specialized expertise.

These include representatives from:

- Universities and colleges
- American Indian tribal nations with historic ties to Ohio
- Citizens of American Indian tribal nations who also reside in Ohio
- State, municipal, and county governments
- Travel and tourism organizations
- Schools and community organizations
- Preservation and conservation organizations
- Business and civic organizations
- Other cultural heritage sites

The goal of the Ambassadors is to support, share, and advance the Outstanding Universal Value of the Property by building partnerships among these organizations and between these organizations and the Property owner agencies. At least one Ambassador sits on the Executive Committee to provide stakeholder input into its coordinating activities. The Ambassadors have no authority to make decisions for the Property. Ambassadors are registered as volunteers of the Ohio History Connection.

American Indian Engagement

Increasingly over the past two to three decades, concerted and productive efforts have been underway to successfully re-engage with the tribes, now based in other states, who have historical connections with this region. Together with other partners, both agencies have created strong relationships and intentional processes for American Indian engagement with the earthwork sites, and involvement with their interpretation and management.

Hopewell Culture National Historical Park has had a formalized American Indian consultation program in place since the 1990s. An increasingly robust consultation and involvement process has been informing all significant management planning at the Park—for example, the Cultural Landscape Report and Environmental Assessment of 2016, the Park's Foundation Document of 2017, and the Hopewell Ceremonial Earthworks Long Range Interpretive Plan, which was created collaboratively with the Ohio History Connection and other partners.

Having been stewards of Fort Ancient already for a century, the Ohio History Connection also initiated a new era of tribal relations following the 1990 passage of the Native American Graves Protection and Repatriation Act, focusing, like the National Park Service,

5.-**7** Joe Watkins (Choctaw, Former National Park Service Chief of Tribal Relations and American Cultures) delivered remarks at the dedication of the new trail and wayside at Hopeton Earthworks, 2016. These developments fulfilled the vision first articulated in the Park's 1997 General Management Plan. (Photo by Tom Engberg, National Park Service)

on tribes with historic ties to Ohio. The quantity and quality of the agency's consultation and collaboration with tribes dramatically accelerated during the decade following 2009. Tribal members and Ohio History Connection staff attended each other's important events, including visits to the earthwork sites. They also shared in grant-funded projects to connect Native peoples with the sites and to interpret the removal story. The appointment of a Director of American Indian Relations by the agency in 2015 led to a significant enhancement of processes and policies, and an annual Tribal Nations Conference. This has provided a fertile context for American Indian involvement in the preparation of management plans, and in the development of new interpretive themes, events, and materials.

Significant partnerships (still represented among the Ambassadors) have also enhanced American Indian involvement with the Hopewell Ceremonial Earthworks, particularly, the Newark Earthworks Center (founded in 2005 at The Ohio State University Newark Campus). The Center has produced public education programs and events (the 2005–06 Octagon Moonrise Ceremonies, and the "Walk with the Ancients" between Mound City and Newark, for example), imbued with vivid and authentic traditional knowledge, tribal histories, and tribal traditions that have enriched the experience of the sites. As an academic center, it has also organized interdisciplinary conferences and publications, and on-site meetings of American Indian and other scholars, tribal leaders, and other visitors. The Center has also partnered with CERHAS (the Center for the Electronic Reconstruction of Historical and Archaeological Sites) at the University of Cincinnati to help produce exhibits, digital publications, and the Ancient Ohio Trail website, all with notable emphasis on American Indian interpretive voices.

The Eyes of a Believer

"Hopewell places seemed, at first, to have little in common with traditional, contemporary Shawnee practice. However, upon further reflection while actually standing upon the soil in our traditional ceremonial grounds, this Shawnee 'axis mundi' of ours, I became mindful of how similar our practice is to that of the Hopewell.

"I marvel over those 50 or so acres at Newark's Octagon and how soil was the palette from which they chose to paint their interpretation and understanding of the world. These places, whether they are places of worship or tools to measure the creation, should be treated as altars. Altars to either the mysteries or to the cosmos.

"My mother was a devout Catholic and these last five decades I of course have witnessed how a great many other beliefs and faiths order their holy spaces. I have never seen a messy altar, nor have I seen one that's been allowed to be sullied. Right now, I do not want to write about what has happened to these holy ancestral places in the time since colonization, but rather I want to conjure to your mind what these places looked like in the time they were being used. If you can for just a moment, look at these places as if you had the eyes of the Hopewell.

"Were they, these mounds and spaces groomed, sown with seeds of the beautiful, or even medicinal plants? When the Hopewell saw the mounds, how did they see them? Perhaps the grass was allowed to grow long upon them, but instead, I wonder. Whenever I am at ceremony and preparing the ground, I am called to think upon our efforts in preparing our ground as if I am plucking a stray whisker from the Grandmother or we are combing her hair so that it shines and reflects the love and reverence we have for the Ancient Way that we Shawnees were given, a celebration inherited by the Shawnee that surely was influenced by the Hopewell."

Benjamin Barnes
Chief, Shawnee Tribe

American Indian tribal nations have engaged with and supported the Hopewell Ceremonial Earthworks World Heritage nomination process for many years. This support has included legislative action, most notably resolutions from the National Congress of American Indians, the Pokagon Band of Potawatomi, the Intertribal Council of Northeast Oklahoma (Shawnee Tribe, Eastern Shawnee Tribe, Miami Tribe, Seneca-Cayuga Tribe, Quapaw Tribe, Peoria Tribe, Ottawa Tribe, Modoc Tribe, Wyandotte Nation), and the Seneca Nation. Since 2017, the Ohio History Connection and Hopewell Culture National Historical Park have jointly updated tribal partners on the nomination efforts at the annual Tribal Nations Conference convened by the Ohio History Connection. Forty-five federally recognized tribes with historic ties to Ohio are invited to this conference each year. The conference will continue to serve as the annual focus for consultation and collaboration with tribal partners on the World Heritage Property. Additional consultation and collaboration occur frequently on specific documents, exhibits, and projects.

Accomplishments of the Executive Committee

In the early years of the Property's presence on the U. S. Tentative List, core members of this planning and administrative group collaborated to:

- Organize and lead several tours of the Hopewell Ceremonial Earthwork sites, to seek advice from national and international ICOMOS and UNESCO experts, and to develop greater awareness of the sites as a unified series among local and regional audiences.
- Request and support an ICOMOS Advisory Mission and Report (on file at ICOMOS), to obtain advice and recommendations for several key issues, which have now been incorporated into management planning documents.
- Launch a website to highlight all three of Ohio's Tentative List sites, but in particular the Hopewell Ceremonial Earthworks, and to provide continuous news and updates on the sites, on ICOMOS and UNESCO matters, and on the preparation of the nomination documents.
- Publish a booklet, *Guide to the Hopewell Ceremonial Earthworks*, written and designed as the first print publication to present these sites as a complementary, unified series, and in terms that highlight their Outstanding Universal Value attributes.
- Raise the funding, together with the Development staff at the Ohio History Connection, to support the work of preparing this nomination and related public outreach activities.
- Contribute key leadership and expertise to visitor experience planning for the Property.
- Prepare this nomination in collaboration with the National Park Service's Office of International Affairs.

5.f Sources & Levels of Finance

Ohio History Connection

The organization's operating funds are budgeted annually for ongoing functions including staff, maintenance, public programming, exhibit design and development, collection curation, marketing, educational resources, and more.

Within Ohio History Connection, the Department of Historic Sites and Museums bears responsibility for managing both the Newark Earthworks and Fort Ancient on behalf of the organization, as well as overseeing direct or indirect management over fifty other sites in the state's historic site network. In fiscal year 2022, the organization has budgeted $1.03 million USD for the collective administration of the Historic Sites and Museums department, and staffing the Newark Earthworks and Fort Ancient. Site maintenance is budgeted separately, with routine maintenance and administrative overhead costs included in the organization's general operating budget. Larger improvements are funded through the State of Ohio's capital budget request process and privately raised funds, as needed.

Overall, in 2020, Ohio History Connection had approximately $28.6 million USD in revenue, with 38% from the State of Ohio's general revenue funds, 26% from State of Ohio capital project funding, 12% from contracts and grants, 15% from contributions, 7% from earned revenue, and 1% from investments. The Ohio History Connection-managed components of this Property are funded primarily through State of Ohio general revenue and capital funds.

Ohio History Connection has also raised over $1 million USD in private funds over the past decade specifically designated for the Hopewell Ceremonial Earthworks World Heritage inscription effort.

Hopewell Culture National Historical Park

Hopewell Culture National Historical Park is funded primarily by U. S. Federal Government appropriated moneys. As of FY 2020 (Oct 2019–Sep 2020), the base operating budget was just over $1.36 million USD; plus over $300,000 USD in project funding in FY 2020 for facility maintenance, youth employment, and cultural/natural resource preservation projects. Project funds vary from year to year depending on park and national level priorities. The base funds are sufficient to meet basic operational needs and cover the costs of routine visitor outreach, education, maintenance, resource management, and administrative functions.

Small donations from the "Friends of Hopewell Culture NHP" (the nonprofit park partner organization), contributions from the Eastern National Parks Association (managers of the onsite bookstore), donations made by visitors through the park donation box, and volunteer work hours contribute to a variety of special activities throughout the year.

The Friends of Hopewell Culture NHP became an official philanthropic partner of the park in 2018. The organization is currently working to build capacity, membership, and fundraising.

5.g Sources of Expertise & Training in Conservation & Management Techniques

There is extensive expertise and training available, primarily coming from within the two organizations, the Ohio History Connection and the National Park Service (the Park itself plus the regional and national offices). Their staffing and expertise areas are described below in Section 5.j. In addition to full-time staff, consultancies and partnerships with other entities provide specialized expertise in a variety of areas, including:

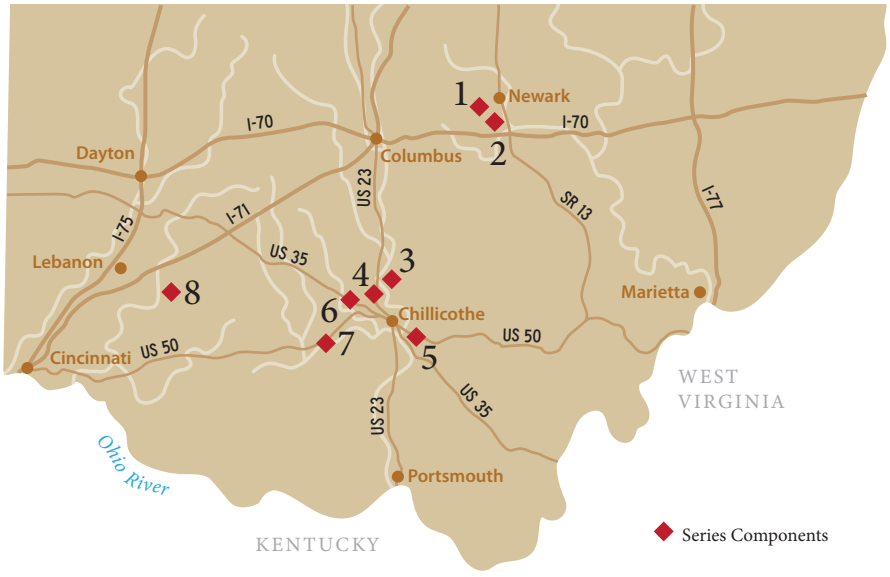
- Federally Recognized Tribal Partners, now numbering 45 in all, whose participation and contributions are described above
- The Newark Earthwork Center, on the Ohio State University Newark Campus, which provides additional leadership in tribal liaison, publications, and interdisciplinary academic research
- The Deutsches Archäologisches Institut, whose collaboration in remote sensing expeditions and interpretation continue to vastly expand the research and understanding of the sites' archaeological significance
- The World Heritage Ambassadors, including individuals with professional expertise in tourism and regional planning, visitor experience design, architecture and landscape, geology, governmental affairs, marketing and development, and several other areas
- The Ohio State Historic Preservation Office, with expertise on policies, compliance, and implementation of preservation laws

5.h Visitor Facilities & Infrastructure

The nominated Property has sufficient infrastructure and facilities to accommodate visitors. The management plans for the Property, and the collaborative agreements between the Ohio History Connection and the National Park Service, consider both the desirability of visitor access, with meaningful interpretive experiences, and the need to protect and conserve the Property and its Outstanding Universal Value.

Daily public access schedules for the components of the nomination vary. All components are open year-round, and only Fort Ancient has an entrance fee. All sites and their associated public buildings and amenities comply with the accessibility requirements of the Americans with Disabilities Act (ADA) as required.

The Property's component sites are linked by excellent road networks, as transportation in the region is overwhelmingly by private automobile. There is no regularly-scheduled public transportation access to the sites, in their rural and edge-suburban settings. Apart from motor coach tour groups, all visitors will arrive by private automobile, or in some cases as noted below, via adjacent bicycle and walking trails.



5.-**8** Map of southern and central Ohio, showing major towns, cities, and highways.

The surrounding or nearby small cities of Newark, Heath, Chillicothe, and Lebanon, Ohio, each offer numerous restaurants and other commerce for the convenience of visitors. Beyond these localities lie the major metropolitan regions of Columbus, Dayton, and Cincinnati, Ohio. Medical facilities in the immediate vicinity can serve the public in times of emergency.

Visitor information (descriptions, locations, open times) on the Hopewell Ceremonial Earthworks is available online at the Ohio History Connection website (https://www.ohiohistory.org/) for both Newark sites and Fort Ancient, and at the Hopewell Culture National Historical Park website (https://www.nps.gov/hocu/index.htm) for Mound City, Hopeton, High Bank, Hopewell, and Seip. Additional interpretive material about these earthworks, as well as many more, and curated heritage tourism routes throughout the region, are available on the Ancient Ohio Trail website (https://www.ancientohiotrail.org/).

The following paragraphs describe the visitor facilities and infrastructure at each component of the nominated Property. They are organized here in three sets, each beginning with the visitor center that orients the experience at Newark (at the Great Circle), Hopewell Culture National Historical Park (at Mound City), and Fort Ancient (the Fort Ancient American Indian Museum).

Newark's Great Circle & Octagon Earthworks

The small museum and visitors center located on the grounds of the Great Circle is reached from a nearby parking area for cars and coaches. The bronze model in front of its entrance orients visitors to the former entirety of the Newark Earthworks complex. Inside are rest rooms, a bookshop, an interactive media program, exhibits, and staff assistance. Trail maps of both Newark sites and the *Guide to the Hopewell Ceremonial Earthworks* are available to visitors. The exhibits at the Newark Great Circle explain the former Newark Earthwork complex in its entirety, and orient visitors to both the Great Circle site and the Octagon Earthworks, two miles across town.

Interpretive signage is placed at several locations around the Great Circle. Self-guided visitation is available year-round at both Newark sites, with the frequency of guided interpretation varying seasonally. Tour events at the Great Circle include an introduction while viewing the bronze model, a guided tour of the enclosure, and self-guided access to the interpretive signs throughout the park. In addition to general public visitation, over a thousand school children visit on school-sponsored field trips each year, usually in connection with the State of Ohio's fourth grade American Indian history and culture social studies curriculum standards.

From a parking area at the Octagon Earthworks, visitors may view the site from anywhere along its southern perimeter, including from the elevated platform near the parallel walls of the Avenue, and from a position near the Observatory Mound. A revised interpretive signage system is being developed as part of the post-golf management of the site, and is described in the Newark Addendum cited above. Meanwhile, the site is open daylight hours; there are no public amenities currently available.

Programs at the Octagon include periodic tours and public open house days. Programs will expand significantly upon Ohio History Connection acquiring full access to the property (See annexed Addendum to the 2003 Newark Historic Site Management Plan (2021)).

The Great Circle and Octagon Earthworks are located within the small, contiguous cities of Newark and Heath, Ohio (combined 2020 population: 46,503). Newark is a historic town and the seat of Licking County, with a robust tourism and amenity inventory and many other attractions—including significant ones related to the early days of Ohio industry. Heath is a suburban, auto-oriented community, also with many offerings of tourism infrastructure. All these amenities are conveniently linked together, and to the large, nearby Columbus, Ohio, metropolitan area (45 kilometers away, with a population of 913,921 as of 2021) by excellent streets and highways.

Hopewell Culture National Historical Park Sites

The visitor center and headquarters of the park are located at the Mound City site, immediately adjacent to a parking area and the orienting view of the earthworks and mounds.

The visitor center is open free of charge and staffed seven days a week, generally from 9 AM to 4 PM, and includes rest rooms, water fountains, and a shop offering publications and other merchandise related to Ohio history, Native America, and the earthworks (including the World Heritage themed Guide mentioned above). Interpretive brochures and driving directions for all the park's publicly accessible earthworks included in this nomination are available at the visitor center information desk.

An auditorium in the visitor center offers regular showings of an orientation film about the accomplishments of the earthwork builders, and is also used periodically for park-sponsored special events and speakers' series. Most visitors also explore the visitor center museum, showcasing artifacts recovered from the site during the 1920s excavations—some of the finest Hopewell artistry known.

Ranger-led tours of Mound City are available during late spring, summer, and early fall; also in the summer months, as staffing allows, ranger-led programming is offered at Hopewell Mound Group, Hopeton, and Seip. Tour details are listed on the park's website and at the visitor center information desk. At Hopeton, a trail from a paved parking area leads to a wayside seating area offering clear views of the earthworks in their landscape presentation. At Hopewell, a parking area for cars and coaches gives access to rest rooms, orientation signage, and a trail system with interpretive and informational signs. Interpretive and informational signs are also available at Seip Earthworks.

"Junior Ranger" and "Junior Archeologist" programs are offered free to visitors of all ages. Booklets containing self-guided activities are available at the visitor center information desk; when the required number of activities are completed, visitors can be "sworn in" as a Junior Ranger or Archeologist and receive a commemorative souvenir. During the school year, educational programs for students can be arranged through park staff. Both on and off-site activities are offered, including "Ranger in the Classroom" at local schools and field trips to the park grounds. On site activities include viewing the orientation film, visiting the museum, ranger-led educational programs, archeology activities, and atlatl practice.

The headquarters for Hopewell Culture National Historical Park is located at Mound City at the northern edge of the small city of Chillicothe, Ohio (2020 population: 21,756). The Hopeton Earthworks are also near the city's northern limits, while Hopewell Mound Group and High Bank Works lie at a greater distance (eight kilometers) to the west and south, respectively. The city occupies an especially well defined topographic setting, where the ancient Teays Valley bisects the westernmost ranges of the Appalachian Plateau. Chillicothe is noted for being the first capital of the state of Ohio (in 1803), and retains a remarkably diverse and well-preserved historic urban core. There are many tourist amenities for both food and lodging within a one to four kilometer mile radius. An especially important site for Ohio's early history, and the history of archaeology, is Ohio History Connection's Adena Mansion and Gardens, built in 1807 on a prominent hill immediately above the city.

5.-**9** National Park Service program at the Hopeton Earthworks visitor wayside overlook. (Photo by Tom Engberg, National Park Service)

Beyond Chillicothe's urban core, wooded hills sharply define the valleys of the Scioto River and its tributaries; their presence helps give character to all five of the nominated sites in the vicinity. The Seip Earthworks lie well beyond the suburban fringes of Chillicothe itself, in the much more rural Paint Creek Valley 40 kilometers to the west. All these sites are accessible by an excellent network of roads and highways. The Adena Recreational Trail is a still-expanding system of re-purposed rail lines, with the potential to connect all of the nominated sites in the area. Chillicothe is linked by limited access expressways to Columbus and to Fort Ancient, and by scenic rural roads (one of the Ancient Ohio Trail's curated routes) approximating the ancient "Great Hopewell Road" to Newark.

Fort Ancient

The Ohio History Connection's primary museum of American Indian history is located on the grounds of Fort Ancient. Visitors can pay to visit the grounds only, or to visit both the grounds and museum. The museum provides staff contact for visitors, rest rooms, a small shop, and extensive exhibits. An orientation film explains the site. The shop offers books, media, themed objects, and the World Heritage themed *Guide to the Hopewell Ceremonial Earthworks*. The exhibits at Fort Ancient emphasize the history of Indigenous cultures in the entire region, as well as the features and archaeology of the site itself. Ongoing efforts include increasing contemporary American Indian stories and voices through collaboration with federally recognized tribes, and working to co-manage the site's forest with Indigenous forest caretakers. A fenced exterior garden presents a reconstructed Hopewell house, and plantings of food crops used by the Indigenous cultures in the region.

Self-guided site touring is, for most visitors, a combination of driving and walking; there are multiple parking locations in the Middle and South Forts; nearby signage provides orientation to several trails both within and outside the enclosures, and to the two principal overlooks. Picnic facilities and seasonal rest rooms are in the eastern section of the South Fort.

Throughout the year, a number of special educational programs and tours are available to the public. These programs cover both human and environmental history, including gardens and food harvesting/production, site geology and botany, and ecology in the past and today. Fort Ancient has a robust school field trip program that serves several thousand children per year—primarily fourth graders (ages 9–10 years old) studying American Indian history and culture.

Fort Ancient has six on-site staff, with regular support and supervision by Ohio History Connection's Historic Sites and Museums Department. Staff are trained in CPR and First Aid. Local fire, paramedics, and law enforcement service the site.

Fort Ancient is located near two interchanges along the primary, limited-access highway from Columbus to Cincinnati. It is 8 kilometers southeast of the small city of Lebanon, Ohio (population 20,642 as of 2019), the county seat of Warren County, which, like Chillicothe, retains a well-preserved urban core and a good variety of heritage-oriented tourist amenities. Warren County has an extremely well-developed, modern tourism infrastructure (supporting 12 million annual visitors), associated with regionally popular theme parks. The Little Miami Bicycle Trail, part of the largest paved-trail network in the United States, passes along the bottom of Fort Ancient's hilltop site, where a canoe livery is also located.

5.i Policies & Programmes Related to the Presentation & Promotion of the Property

Presentation of the Property

Anticipating World Heritage inscription, the Executive Committee has initiated new, collaborative work towards more coordinated materials—in particular emphasizing the Property's Outstanding Universal Value, new research, and American Indian perspectives. A new Long Range Interpretive Plan (LRIP) for the Property has been completed, with American Indian consultation, outlining a set of shared themes, approaches, topics, and programs. Collaborative work is well underway toward visitor experience planning and a Property-wide approach for all visitor touchpoints and media around the specific factors affecting multi-site earthwork visitation.

Long Range Interpretive Plan: Themes

Theme 1. Indigenous people of this land constructed and gathered within these vast earthworks and continue to respect and revere these places today. The earthworks are part of a long and still-thriving legacy of Indigenous ceremonial centers across North America.

Theme 2. The builders of these vast earthworks aligned them to the sun and moon with remarkable accuracy, repeating precise engineering and geometry across a region extending for hundreds of miles. They also crafted ritual items, specially made to be used in these places, out of precious materials obtained from nearby and from across the continent.

Theme 3. Ancestors of Indigenous people came from small, dispersed settlements near and far to gather at the Hopewell Ceremonial Earthworks, sharing knowledge and cultural practices that spread across great distances and passed down through many generations.

Theme 4. The ways we learn about the Hopewell Ceremonial Earthworks continue to change, as Indigenous, scientific, and other forms of knowledge work together to grow our understanding of these earthworks in the past and today.

Theme 5. The landscape of the Middle Ohio River Valley shaped the earthwork builders' culture and influenced their decision to build earthworks here; the builders in turn reshaped the landscape. Connections among landscapes, people, and the earthworks persist here today.

5.-**10** The Seip-Pricer Mound viewed from the north, also showing the restored wall of the large circle in the foreground.

Visitor Experience Planning

Following from the LRIP and its themes, a collaborative, Property-wide visitor experience planning process is also underway and slated for implementation over the next four to five years. New media, materials, and activities developed to connect the story of each site with the others will emphasize two primary areas: the Property's Outstanding Universal Value attributes and a richer and more diverse American Indian thematic presence.

At the individual Property components, new, World-Heritage-themed exhibits will be installed at the existing visitor centers at Fort Ancient, Mound City, and Newark's Great Circle. These will tell the World Heritage story, mention all of the components of the series, and summarize their Outstanding Universal Value. The published *Guide to the Hopewell Ceremonial Earthworks* will continue to be enhanced and upgraded as a central resource that reinforces these connections.

Additional components of visitor experience planning to support unified experiences across the Property will be developed. These include new wayfinding and visualization tools; docent/volunteer/concierge training programs at each site, and a variety of multi-site tours and itineraries. New retail souvenir and gift products in line with the Property's Outstanding Universal Value will be developed, providing economic development opportunities for American Indian craft producers. Finally, signature themed events spread across a seasonal calendar will offer visitors special interpretive experiences. The management of these coordinated visitor experience efforts will be provided for within the collaborative agreements and management arrangement described above in Section 5.e.

Promotion of the Property

Working with the Ohio History Connection's marketing team, National Park Service visitor experience planning and tourism experts, county Convention and Visitor Bureaus, the Ohio Travel Association, and the state's official tourism agency, a unified approach to marketing these sites will be developed, leveraging the publicity which will follow World Heritage inscription. The initial primary target audiences for this effort include international and Native American travelers. Press releases and news placements will target cultural, historical, Indigenous, and heritage niche market publications in North America and beyond. The Hopewell Ceremonial Earthworks will be featured with Ohio's presence at national and international cultural heritage and tourism trade shows.

A strong social media presence and a coordinated, Property-wide web resource will help promote the property. Ohio History Connection and the National Park Service will maintain separate social media and web resources, while also working towards creating a single digital point of entry for streamlined promotion, digital interpretive experiences, trip planning, and post-trip engagement.

5.j Staffing Levels & Expertise (professional, technical, maintenance)

National Park Service, Hopewell Culture National Historical Park

Hopewell Culture National Historical Park employs 19 full-time staff members and five part-time staff members, and has approximately eight volunteers and interns. The Park is managed by a Superintendent with the support of an Administrative Technician. An interdisciplinary management team comprised of the chiefs of each of the following departments reviews projects as needed.

Facility Management: One full-time Maintenance Worker Supervisor; one Student Trainee Maintenance Worker; and 2–3 Seasonal Laborers.

Interpretation: One full-time Chief of Interpretation, Education, and Outreach; one Visual Information Specialist; one Educational Technician; two Park Guides; 2–3 Seasonal Park Rangers and Guides; and 1–2 Interns.

Resource Management: One full time, full performance Archeologist serving as Chief of Resource Management; one full time, full performance Archeologist serving as Cultural Resource Management Specialist and Museum Curator; a Biological Technician; 4–6 Seasonal Archeology and Biology Technicians; and two interns.

Visitor and Resource Protection: One full-time Law Enforcement Specialist.

In addition to these staff positions on site at the Park, the National Park Service's Washington Support and Midwest Regional Offices have extensive staffs of specialists who support review and implementation of Park projects. Areas of expertise include natural and cultural resource management; Indigenous and public affairs; interpretation and education; visitor and resource protection, and facility management. NPS-level administrative support is available from an Administrative Officer (Chief of the West Business Group), Budget Analysts, Partnership Specialists, Information Technology Specialists, Acquisition/Travel/Property Technicians, Human Resources Specialists, and Contracting Officers. Off-site support also includes a Chief of Facility Management and a Facility Management Support Technician.

Ohio History Connection

Ohio History Connection maintains a full staff of approximately 200 museum professionals who serve as resources for its entire historic site and museum system. These staff include professionally credentialed archaeologists, exhibit designers, architects, museum administrators, historic site management experts, collection registrars and curators, librarians and archivists, American Indian relations experts, and historic site maintenance experts. All of these experts are available to support the Octagon and Great Circle Earthworks and Fort Ancient as needed. The organization also houses the Ohio State Historic Preservation Office, which provides review for internal and external clients on compliance with the National Historic Preservation Act and the National Environmental Policy Act.

Ohio History Connection is led by an Executive Director (Chief Executive Officer) with extensive training and experience running museums and cultural institutions. The Executive Director reports to the organization's Board of Trustees, and is supported by a deputy director and a senior leadership team comprising directors of the organization's major areas: Marketing and Communications, Finance, Development, Outreach, the State Historic Preservation Office, and Cultural Resources.

Within the Cultural Resources Division, which is led by an experienced museum education and management professional, the Department of Historic Sites and Museums oversees the management of the state's site network of over 50 sites and museums, including daily operations at the Newark Earthworks and Fort Ancient. Also within Cultural Resources, the Facilities Management Department works with Historic Sites and Museums to help maintain and improve infrastructure. Key staff in each of these areas are as follows:

Historic Sites and Museums: the department Director, an archaeologist and management professional who leads the World Heritage effort for the organization; a Senior Archaeologist for the World Heritage Program, who has three decades of research and engagement with the Ohio History Connection components of the Property; two Site Coordinators, historic sites operations experts who supervise daily operations at the Newark Earthworks and Fort Ancient; and site-based staff including three Maintenance and Groundskeeping Technicians, an Education Specialist, four Visitor Services Representatives, and seasonal staff and interns.

Facilities Management: a department Director who is an architect specializing in historic structures and resources; three project architects; an engineering systems specialist; a resource protection archaeologist; and a statewide maintenance crew.

Section 6:
Monitoring

6

"Across the thirteen moons on Turtle's back, across multiples of centuries, the Mother Mounds are calling to their children: 'Come home...' They call, sing, coo, echo, hum. They infiltrate our sleeping and our waking dreams with whispers of thoughts they make as if our very own: 'Come home...it's time. Come home to rest your hearts in the layered folds of Mother's skirts.'"

Monique Mjoica
Founding Member
Native Earth Performing Arts
Toronto Guna & Rappahannock Nations, Canada
(From: Barker and Solga, *New Canadian Realisms: New Essays on Canadian Theatre*, Vol. 2, 2012)

6.a Key Indicators for Measuring State of Conservation

Ohio History Connection Sites

Octagon Earthworks, Great Circle Earthworks, Fort Ancient

Indicator	Periodicity	Location of Records
Vegetation: Number of mature trees with weakness or disease, susceptibility to serious damage or falls, number of falls	Octagon and Great Circle weekly; Fort Ancient's public areas monthly and entire earthworks annually; annual report filed	Ohio History Connection Department of Historic Sites and Museums: Newark Earthworks and Fort Ancient electronic files
Vegetation: Changes in presence of invasive, exotic plants, and woody species	All sites quarterly; report filed	
Earthworks: Surface and dimensional stability of mounds, walls, and ditches, due to erosion	All sites monthly; report filed	
Earthworks: Evidence of intrusions on below-grade resources, due to burrowing animals	All sites monthly; annual report filed	
Visitation: Numbers per day, per event, per type	All sites monthly; totals reported	
Visitation: Impacts from visitor foot traffic or other activities	All sites monthly; report filed	

National Park Service Sites

Hopeton Earthworks, Mound City, High Bank Works, Hopewell Mound Group, Seip Earthworks

Indicator	Periodicity	Location of Records
Vegetation: Number of mature trees with weakness or disease, susceptibility to serious damage or falls, number of falls	All sites weekly or monthly; monitoring forms filed annually	NPS Cultural Resources Inventory System (CRIS), Park Resource Management Files
Vegetation: Changes in presence of invasive, exotic plants, and woody species	All sites weekly or monthly; monitoring forms filed annually	NPS CRIS; NPS Heartland Monitoring Network; Park Resource Management Files
Earthworks: Surface and dimensional stability of mounds, walls, and pits, due to erosion	All sites weekly or monthly; monitoring forms filed annually	NPS Cultural Resources Inventory System (CRIS), Park Resource Management Files
Earthworks: Evidence of intrusions on below-grade resources, due to burrowing animals	All sites weekly or monthly; monitoring forms filed annually	NPS Cultural Resources Inventory System (CRIS), Park Resource Management Files
Visitation: Numbers per day, per event, per site	All site totals submitted monthly	NPS Visitor Use Statistics
Visitation: Impacts from visitor foot traffic or other activities	All sites weekly or monthly; monitoring forms filed annually	NPS Cultural Resources Inventory System (CRIS), Park Resource Management Files

6.b Administrative Arrangements for Monitoring Property

Ohio History Connection
Jennifer Aultman, Director of Historic Sites and Museums
Ohio History Connection
800 East 17th Avenue
Columbus, Ohio 43211
T: 614-297-2300
E: info@ohiohistory.org

National Park Service
Karen Dorn, Superintendent
National Park Service
Hopewell Culture National Historical Park
16062 State Rte. 104
Chillicothe, Ohio 45601
T: 740-774-1126
E: HOCU_Info@nps.gov

6.c Results of Previous Reporting Excercises

Hopewell Ceremonial Earthworks Report

Report on the ICOMOS Advisory Mission to the Hopewell Ceremonial Earthworks, by Margaret Gowen, 2015. Summarizes issues and conditions at the nominated sites as of its date, with specific reference to Newark's Octagon and Great Circle Earthworks, Hopewell Mound Group, and Fort Ancient.

Ohio History Connection Reports

The following reports provide baseline data for monitoring those factors pertinent to the Outstanding Universal Value at Newark's Octagon and Great Circle Earthworks, and at Fort Ancient. All are on file at the Ohio History Connection, Columbus, Ohio:

A Brief Report on the Archaeological Integrity of Octagon State Memorial/ Moundbuilders Country Club, by Bradley T. Lepper (1991). Summarizes the extent of intact and disturbed portions of the Octagon Earthworks.

The Fort Ancient Earthworks: Prehistoric Lifeways of the Hopewell Culture in Southwestern Ohio (Symposium proceedings), edited by Robert P. Connolly and Bradley T. Lepper (Columbus: Ohio History Connection, 2002, reprinted 2016). Summarizes current state of the earthworks and related research at Fort Ancient, as of its initial date.

Fort Ancient Earthworks Protection Project Final Report, by Meghan Marley (Ohio History Connection, 2019). Summarizes procedures and policies for recording and mitigating erosion risks and conditions at the Fort Ancient Earthworks; establishes the base line for monitoring going forward.

Native Plant Policy, by Ohio History Connection staff (2017). Summarizes procedures and policies for recording and mitigating invasive species at Newark's Octagon and Great Circle, and at the Fort Ancient Earthworks; establishes the base line for monitoring going forward.

National Park Service Reports

The following reports provide baseline data for monitoring those factors pertinent to the Outstanding Universal Value at Hopeton Earthworks, Mound City, High Bank Works, Hopewell Mound Group, and Seip Earthworks. All are on file at the locations indicated:

Archaeological Site Monitoring Program Reports. These annual reports by NPS staff record any disturbances to the archaeological sites, and are on file at the National Park Service's Midwestern Archaeological Center in Lincoln, Nebraska, and in its Cultural Resources Inventory System (CRIS).

Reports of Streamlined Review, National Historic Preservation Act (NHPA). These biennial reports by Park staff detail all projects over successive two-year periods that the Park has submitted to the NPS Regional Office without Ohio State Historic Preservation Office (SHPO) review. On file at the Ohio SHPO and the Park's Resource Management Files.

Vegetation Mapping and Classification of Hopewell Culture National Historical Park, Ohio (NPS Natural Resource Report 793), by D. D. Diamond, L. Elliott, M. DeBacker, K. James, D. Pursell, and A. Struckhoff (2014). This inventory classifies areas of vegetation within all units of the Park for the purpose of better management practices, especially of invasive exotic species. On file on the Integrated Resource Management Application (IRMA) website.

Hopewell Culture National Historical Park Cultural Landscape Report/Environmental Assessment, by National Park Service staff (2016). Details treatment alternatives for the cultural landscape of each unit of the Park, balancing archaeological resources, visitor experience, vegetation, and wildlife considerations. On file in the Park's Resource Management Files, and posted on its website. (Described in Section 5 and annexed to this nomination.)

Natural Resource Condition Assessment: Hopewell Culture National Historical Park (NPS Natural Resources Report 2178), by D. Jones, R. Cook, J. Sovell, M. Ley, H. Shepler, D. Weinzimmer, and C. Linares (2020). This report summarizes all aspects of the natural resources at all units of the Park, especially invasive exotic plant species. On file with the National Park Service, Fort Collins, Colorado, and on the Integrated Resource Management Application (IRMA) website.

Integrated Pest Management Plan, Hopewell Culture National Historical Park, by National Park Service staff (2005). This document details management plans for dealing with various pests including insects, vegetation, and wildlife. On file in the Park's Resource Management Files.

Thomas Blackstone House Historic Structures Report: Seip Earthworks Unit, Hopewell Culture National Historical Park, Bainbridge, Ohio, by National Park Service staff (2017). This report details treatment alternatives for stabilization and rehabilitation of the historic structures located on the Seip Earthworks site. On file at the Midwest Archaeological Center in Lincoln, Nebraska, and in the Park's Resource Management Files.

Hopewell Culture National Historical Park: Geologic Resources Inventory Report (NPS Natural Resources Report 640), by T. Thornberry-Ehrlich (2013). This is an inventory of the geological resources and history at all of the Park's units and discusses geologic issues including erosion. On file at the National Park Service, Fort Collins, Colorado, and on the Integrated Resource Management Application (IRMA) website.

Invasive Plant Monitoring (Year 3) for Hopewell Culture National Historical Park (NPS Natural Resource Report 1117), by C. Young, J. Haack-Gaynor, and J. Bell (2016). Documentation of the final year of a three-part study conducted in 2008, 2011, and 2016, assessing the impact of invasive plants at all units of the Park. On file at the National Park Service, Fort Collins, Colorado, and on the Integrated Resource Management Application (IRMA) website.

Section 7:
Documentation

7

"Much Indian knowledge involved the technique of reproducing the cosmos in miniature and invoking spiritual change, which would be followed by physical change. ...Wherever possible the larger cosmos was represented and reproduced to provide a context in which ceremonies could occur. Thus, people did not feel alone; they participated in cosmic rhythms."

Vine Deloria (1933–2005)
American Historian & Theologian
Citizen, Standing Rock Sioux
(From: Deloria and Wildcat, *Power & Place: Indian Education in America*, 2001)

7. Documentation

7.a *Photographs & Audiovisual Image Inventory & Authorization Form*

File Name	Format	Caption	Date	Photographer	Copyright Owner	Contact Details of Copyright Owner	NCR* *Nonexclusive Cession of Rights*
HCE-01	jpeg	Octagon Earthworks: Gate, Wall, & Small Circle	03/21	Bradley T. Lepper	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-02	jpeg	Octagon Earthworks: Observatory Mound & Circle	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-03	jpeg	Octagon Earthworks: Southeastern Octagon Wall	11/16	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-04	jpeg	Octagon Earthworks: Avenue at Sunrise	03/21	Bradley T. Lepper	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-05	jpeg	Octagon Earthworks: Northernmost Moonrise	10/05		Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-06	jpeg	Great Circle Earthworks: Gateway & Eagle Mound	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-07	jpeg	Great Circle Earthworks: Aerial View	09/20	Bradley T. Lepper	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-08	jpeg	Great Circle Earthworks: Gateway	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-09	jpeg	Great Circle Earthworks: Eagle Mound	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-10	jpeg	Great Circle Earthworks: Interior Ditch	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-11	jpeg	Hopeton Earthworks: LiDAR Image	09/20	Andrew Weiland	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-12	jpeg	Hopeton Earthworks: Square from Visitor Overlook	12/19	Susan Knisley	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-13	jpeg	Hopeton Earthworks: Wall Excavations 2003	07/03	Mark J. Lynott	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-14	jpeg	Hopeton Earthworks: NPS Mowing Pattern	09/20	Tim Anderson Jr.	First Capital Aerial Media	508-518 US-50 Chillicothe, OH 45601	Yes
HCE-15	jpeg	Mound City: Aerial View	06/03	John Blank	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-16	jpeg	Mound City: View with Mount Logan at Sunrise	03/16	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-17	jpeg	Mound City: Wall & Mounds from Northwest	03/16	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-18	jpeg	Mound City: Wall & Mounds from South	03/16	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-19	jpeg	High Bank Earthworks: Circle from East	09/20	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-20	jpeg	Hopewell Mound Group: Northern Wall & Ditch	09/20	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-21	jpeg	Hopewell Mound Group: Great Enclosure Interior	09/20	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-22	jpeg	Seip Earthworks: Wall & Seip-Pricer Mound	09/20	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes

File Name	Format	Caption	Date	Photographer	Copyright Owner	Contact Details of Copyright Owner	NCR* *Nonexclusive Cession of Rights*
HCE-23	jpeg	Seip Earthworks: Large Circle North Gateway	09/20	John E. Hancock	Hopewell Culture NHP/ US National Park Service	16062 State Route 104 Chillicothe, OH 45601	Yes
HCE-24	jpeg	Fort Ancient: North Fort Walls & Stone Mound	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-25	jpeg	Fort Ancient: LiDAR Image	09/20	Jarrod Burks	Ohio Valley Archaeology, Inc.	4889 Sinclair Road, Ste 210 Columbus, OH 43229	Yes
HCE-26	jpeg	Fort Ancient: South Gate	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-27	jpeg	Fort Ancient: Pond with Gate 73	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-28	jpeg	Fort Ancient: Twin Mounds	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes
HCE-29	jpeg	Fort Ancient: Middle Fort Southeastern Walls	09/20	John E. Hancock	Ohio History Connection	800 E. 17th Ave Columbus, OH 43211	Yes

7.b *Texts Relating to Protective Designations*

Federal Legal Measures

01 The National Park Service Organic Act of 1916

02 The American Antiquities Act of 1906

03 The Historic Sites, Buildings, Objects, and Antiquities Act of 1935

04 The National Historic Preservation Act of 1966

05 The National Environmental Policy Act of 1969

06 The Archaeological and Historic Preservation Act of 1974

07 The Archaeological Resources Protection Act of 1979

08 The American Indian Religious Freedom Act of 1978

09 The Native American Graves Protection & Repatriation Act of 1990

10 Presidential Proclamation, March 23, 1923

11 Public Law No. 96-607

12 Public Law No. 102-294

13 National Historic Landmark Designation: Newark Earthworks

14 National Historic Landmark Designation: Hopeton Earthworks

15 National Historic Landmark Designation: Fort Ancient

State & Local Measures

01 Ohio Revised Code 149.30 (1965)

02 Ohio Revised Code 155.05 (1953) and 155.99 (1974)

03 Ohio Revised Code 149.53 (1976, revised 2015)

04 Ohio Revised Code 149.54 (1983)

05 City of Newark Zoning Code, Ordinance 008-33 (2009)

06 Codified Ordinances of the City of Heath, Ohio: Part 11, Title Five: Zoning Districts and Regulations, Chapters 1161 (Residential) & 1163 (General Business)

Chapter 1131 (Great Circle Overlay District)

07 Warren County Zoning Law, Excerpts

08 Warren County Comprehensive Plan, Excerpts

09 Little Miami State & National Scenic River Designation

10 Ohio State Memorial Designation: Newark Earthworks

11 Ohio State Memorial Designation: Fort Ancient

Management Plans & Related Documents

01 Hopewell Culture National Historical Park General Management Plan & Environmental Assessment

02 Hopewell Culture National Historical Park Cultural Landscape Report & Environmental Assessment

03 Historic Site Management Plan for Newark Earthworks State Memorial

04 Addendum to Newark Historic Site Management Plan, including Octagon Earthworks Vision (2021)

05 Fort Ancient Management Plan

06 Ohio History Connection American Indian Policy

07 Cooperative Agreement between Hopewell Culture National Historical Park & Ohio History Connection

08 Hopewell Ceremonial Earthworks Long Range Interpretive Plan

7.c *Form & Date of Most Recent Records or Inventory of Property*

Property inventories and condition assessments are updated regularly (at minimum annually) by Ohio History Connection and Hopewell Culture National Historical Park for their respective components. For the National Park Service, the most recent inventories and assessments are maintained in the Facility Management Software System and the Finance and Business Management System for the National Park Service. Ohio History Connection maintains inventory and assessment documents within its Historic Sites & Museums and Facilities Management Department files.

7.d *Address Where Inventory, Records, & Archives are Held*

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"There's such a complexity, and it gives me great pride to know that. Too many times the word that I read in Ohio history, and in signs in Ohio, on statues, on monuments, my people are often referred to as 'savages.' (But) there had to be such intellectual capacity here…there had to be so much knowledge of so many different subjects. And so there's an intellectual, there's an emotional, there is a spiritual (achievement here), and it gives me immense pride."

Glenna J. Wallace
Chief, Eastern Shawnee Tribe of Oklahoma
(From: "A Complex Achievement," *The Ancient Ohio Trail*, www.ancientohiotrail.org, 2008)

Section 8:
Contact Information

8

"The world of the first Americans was richer, greater, more wondrous by far than most of us have ever imagined or than most histories have ever even implied."

David McCullough
American Historian
(From: Kennedy, *Hidden Cities: The Discovery and Loss of Ancient North American Civilization*, 1994)

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Licking County Commissioners
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Chillicothe, OH 45601
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8.c Other Local Institutions

continued—

Warren County Convention & Visitors Bureau
5412 Courseview Drive, #220
Mason, OH 45040
T: 513-204-1900
W: https://www.ohioslargestplay-ground.com

Ohio Travel Association
1801 Watermark Drive, #375
Columbus, OH 43215
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8.e Acknowledgments

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Chief Glenna Wallace, Burt Logan, Phyllis Ellin, Stephen Morris, Cathryn Long, and Bruce Lombardo. Cathryn and Bruce, you inspire us still.

Section 9:
Signature on Behalf of the State Party

Assistant Secretary for Fish and Wildlife and Parks
United States Department of the Interior

"We still plant crops by the moon. We de-horn calves by the moon. Practically every functional daily thing we do involves the moon signs. We don't have the same thing as regards to the sun—I see the Aztec sun signs and the Hopis, and the Incas, but we don't have that in the Woodland culture."

Charles Dawes (1923–2001)
Chief, Ottawa Tribe of Oklahoma
(From: Voyageur Media Group, *Searching for the Great Hopewell Road*, 1998)