Archaeological Consultants of Ossian

January 20, 2013

Mr. Raymond S. Joseph Jr.
Porter County Parks & Recreation
155 Indiana Ave., Suite 304
Valparaiso, IN 46383

Dear Mr. Joseph:

Enclosed is a report entitled *An Archaeological Field Reconnaissance of the Proposed Children's Natural Playground at the Sunset Farm County Park in Porter County, Indiana.* Archaeological Consultants of Ossian Cultural Resource Management Report #13 FR 12. Please forward this report to the Indiana Division of Historic Preservation and Archaeology along with any site forms. Please make a copy of the report and any site forms that may be present.

As you will see from the report, Phase I survey has detected no properties that are eligible for nomination to the National Register of Historic Places. Since no historically or archaeologically significant sites will be impacted by the proposed undertaking, we recommend that project clearance be granted.

Thank you very much for the opportunity to work with you. If there is anything more I can do for you, please do not hesitate to call me at 765 730-0524 or 765 281-0969.

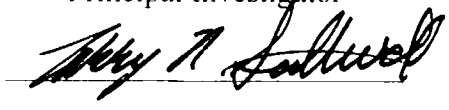
Sincerely,

Larry N. Stillwell
Archaeologist

enclosures: CRM Report 13 FR 12

An Archaeological Field Reconnaissance of the Proposed Children's Natural Playground at the Sunset Farm County Park in Porter County, Indiana

By
Larry N. Stillwell
Principal Investigator



Submitted by:
Archaeological Consultants of Ossian
P.O. Box 2374
Muncie, IN 47307

Submitted to:

Porter Co. Parks & Recreation Dept.
Valparaiso, IN

January 20, 2013

Introduction

As a result of a request by the Porter Co. Parks and Recreation Dept., Archaeological Consultants of Ossian (ACO) was contracted to evaluate the effects on cultural resources of the proposed Children's Natural Playground at the Sunset Farm County Park near Valparaiso, Porter County, Indiana (Figure 1). On January 17, 2013, personnel from Archaeological Consultants of Ossian conducted an archaeological reconnaissance survey of an approximate 4.0 acre tract selected for development. The area surveyed is located in portions of the W 1/2 of the NW 1/4 of the NW 1/4 of Section 25, Township 36 North, Range 6 West (Liberty Township) near Valparaiso, Porter County, Indiana (Figure 2). No archaeological sites were discovered as a result of the survey. This report is a summary of the background review and the results of the Phase I archaeological investigation.

Physical Environment

Porter County has a continental climate with cold winters and hot summers. Both tropical and arctic air patterns cross over the area, bringing wide temperature fluctuations which are directly influenced by Lake Michigan. The distribution of precipitation is relatively even throughout the year with slightly more rain falling between the months of April and September (Furr 1972). Temperatures range from an average January daily low of 18° F to a July daily high of 85° F, with an average of 148 frost free days per year (five in ten year probability).

The project area lies within the Valparaiso Morainal Area of the Northern Moraine and Lake Region (Homoya 1985; Schneider 1966). The area is largely a series morainic ridges of glacial age that once marked the southern most extent of the Lake Michigan basin. The area is not a common moraine, but an acute end moraine that arcs from southern Wisconsin, through northwestern Indiana, on into northeastern Illinois. This undulating moraine is generally an average of 150 feet higher than the Calumet Lacustrine Plain before it (Schneider 1966).

The Pleistocene geology of the project area is that of the Valparaiso Morainal Lake Area; the border of the southernmost advance of glacial Lake Chicago (Schneider 1966; Ulrich 1966). The deposits in the area are known as the lacustrine facies of the Atherton formation, which were laid down during the Pleistocene era (Gutschick 1966; Wayne 1963, 1966). Bedrock geology of the project area is composed primarily of Niagran Series limestones and dolomites of Devonian and Silurian ages (Droste and Shaver 1983; Gutschick 1966). These formations are bowed upward into the Kankakee-Cincinnati arch, and contain a number of cherty rocks (such as Liston Creek limestone), which could be exploited by prehistoric peoples (Doheny et al 1975). Owing to the deep mantle of glacial tills, lacustrine and outwash deposits, the underlying bedrock has little effect on present-day topographic features (Schaal 1966). The deep till deposits overlying bedrock has resulted in a relatively chert-poor environment. Bedrock exposures of chert in the study area are not known, although siliceous materials are common components in the gravels of till and outwash deposits. These gravels tend to be small, poor quality, and prone to internal flaws and frost fractures owing to their transport and environment.

Soils in the area are dominated by the Elliot-Markham-Pewamo Association (Furr 1972; Ulrich 1966). The Elliot-Markham-Pewamo Association is characterized by nearly level to gently sloping, well drained to poorly drained silty soils that formed in moderately fine textured glacial till on till plains and moraines (Furr 1972). Specific soils within the project area consist of the deep, well drained Morley silt loam, 2-6% slopes, eroded (Furr 1972). Morley soils are formed in calcareous glacial till and are situated on moraines and till plains within the region (Furr 1972).

The hydrology of the area suggests that lack of water would not have been a concern for prehistoric and early historic occupants of the project area. The project area is drained by Damon Run. Other sources of water near the project area consist of a series of glacial lakes (i.e. Moss Lake), Spring Run, and wetlands. The project area is considered to be within the Kankakee River watershed.

The presettlement vegetation of the area was a transitional zone between oak-hickory hardwood forest, wetlands, and dry prairie (Petty and Jackson 1966). Lindsey (et. al. 1965) provides a similar vegetational description for the project area. The plant community of the region consists of a variety of vegetation including Jack and White pine, prairie and dune grasses, Black and White Oak, Huckleberry, wild Garlic, Onion, and Leek, Hickory, Black and White Walnut, etc. Notes from the General Land Office Survey records for the township also cite similar vegetation (GLO 1834).

Taken as a whole, the environmental data (soils, hydrologic, and vegetational) all suggest that the area has a potential to contain archaeological sites. The area was likely occupied and/or exploited by prehistoric Native Americans as well as Euroamerican settlers. The combination of well drained soils (i.e. Morley soils) located near constant sources of water (i.e. Damon Run), in a vegetational zone that provides abundant resources has consistently yielded relatively moderate densities of archaeological sites in previous surveys (e.g., Hart and Jeske 1988, 1991; Jeske 1992). Climatological, vegetational, and edaphic variables all point to the probability that area would have been attractive draw to both hunter-gatherers and early horticulturalists in this portion of the Midwest.

Culture Sequence/Background Review

The archaeology of Porter County is relatively poorly known, although some study has been conducted in the region as a result of cultural resource management surveys, sponsored research, or through the accidental discovery of archaeological materials. The archaeological site files and maps at the Indiana Division of Historic Preservation and Archaeology as well as at Archaeological Consultants of Ossian were examined as part of the background review for this project. Historical documents such as county plat maps (Anonymous 1876) and notes and maps of the General Land Office were also examined (GLO 1834). Cultural resources within the region are known from interviews with private collectors, and some are known from historic sources (e.g., Blatchley 1897; Faulkner 1966, 1972; Freudenrich 1978; Guernsey 1932; McAllister 1932; Skinner 1950). Other archaeological sites have been documented as a result of cultural resource management projects which have been conducted within the county (Angst 1995; Baltz

1986; Bellis 1991; Freudenrich 1978; Frost 1990, 2001; Fugate et. al. 1999; Jeske 1996; Jeske and Stillwell 1994a, 1994b, 1995; Smith et. al. 1998; Stephenson 1983; Zoll 1995; etc.). The author has also conducted numerous studies within the county (Stillwell 1997, 1999, 2000a, 2000b, 2001a, 2001b, 2002a, 2002b, 2002c, 2002d, 2003a, 2003b, 2003c, 2003d, 2004a, 2004b, 2004c, 2005a, 2005b, 2005c, 2005d, 2005e, 2006a, 2006b, 2007, 2008a, 2008b, 2008c, 2008d, 2009, 2010a, 2010b, 2011, 2012a, 2012b, 2012c).

All phases of Indiana prehistory have been documented in Porter County from the Paleo-Indian through the Upper Mississippian periods (Cunningham 1948; Doershuk 1984; Faulkner 1966, 1972; Mason 1981; Schurr 1996, 1997, 1999; Tankersley et. al. 1990). However, Mississippian manifestations within the county appear to be confined to Upper-Mississippian groups such as Huber and Fisher. No classical phase Mississippian "type" sites have ever been documented within the county such as Fort Ancient, Angel, Caborn-Welborn, or Vincennes (Brown and O'Brien 1990). Prominent prehistoric cultural manifestations in the area include Late Archaic Red Ochre and Glacial Kame as described by Cunningham (1948). Middle Woodland Phases such as Havana Hopewell and Goodall have also been documented in the region (Quimby 1941; Schurr 1996, 1997, 1999; Struever 1964).

Currently, at least 735 archaeological sites are known to exist for Porter County. Many of the sites documented within the county have been described as potentially significant. Some of the significant cultural resources include the Fifield site (Skinner 1950), the Davidson site (Jeske 1991), as well as 12-Pr-526 and 12-Pr-527. These latter sites were located during the examination of a 75 acre development project for Lefty's Coho Landing. The survey was conducted by Indiana University (Sipes and Natt 1998). Two of the three sites located during the survey (12-Pr-526 and 12-Pr 527) were thought to have been potentially significant. Both sites were described as large lithic scatters that contained numerous fragments of prehistoric pottery. Pottery from the sites indicated that 12-Pr-527 contained a Havana-Hopewell component of the Middle Woodland period. Site 12-Pr-526 contained Middle and Late Woodland cultural affiliations as well as an Upper Mississippian component. Some of the ceramics from this site were consistent with those found at the Moccasin Bluff Site in southwestern Michigan (Bettarel and Smith 1973). Jeske's examination of the Davidson Site (Jeske 1991) also documented Upper Mississippian components within Porter County. The Davidson Site contained an Upper Mississippian burial as well as interred grave goods (pottery) and was located as a direct result of an accidental discovery.

Other significant prehistoric sites have been known in Porter County for at least 100 years (Blatchley 1897). Stillwell (2002b) conducted a field survey for a proposed landfill site near Kouts. The survey re-examined eight previously reported burial mounds of the Upp-Wark mound complex (12-Pr-17 through 12-Pr-19, and 12-Pr-23 through 12-Pr-27) that were thought to have been located within the 100 acre tract examined for the proposed landfill (McAllister 1932; Blatchley 1897). An additional three mounds (12-Pr-20 through 12-Pr-22) were known to exist outside of the landfill limits. During his survey of the landfill, Stillwell documented an additional five archaeological sites. The sites consisted of lithic scatters which were probably related to the Upp-Wark mound

complex. One of the sites contained a fragment of a Middle Woodland Snyders point which would have dated to the approximate period of mound construction.

Schurr (2001) has also conducted significant archaeological survey within Porter County near the Town of Kouts. Schurr examined the habitation area associated with Weise Mound (12-Pr-35). Weise Mound was excavated by McAllister in 1932. McAllister reported that no artifacts were associated with the burials he unearthed. Faulkner (1972) speculated that the mound was constructed between 350 A.D. and 1000 A.D. during the Late Woodland Period. Schurr has noted that mound burials decrease in importance during the Late Woodland Period and that Native American populations within the region tend to follow a hybrid lifestyle similar to "Weaver" occupations in Illinois and "Albee" Phase in central Indiana.

The Historic Preservation archives indicated that none of the known archaeological resources on file for Porter County were located within the current project area. However, the same records showed that at least 16 archaeological sites were located within an approximate 1.0 mile radius of the project area. The sites included 12-Pr-36, 12-Pr-56, 12-Pr-103, 12-Pr-250, 12-Pr-542, 12-Pr-543, 12-Pr-555, 12-Pr-556, 12-Pr-566, 12-Pr-568 through 12-Pr-570, 12-Pr-582, 12-Pr-599, 12-Pr-600, and 12-Pr-735.

Information of file at the State Historic Preservation Office indicated that sites in Porter County tend to be more frequent across the landscape in the Calumet Lacustrine Plain than they are across the Valparaiso Morainal Area. This may be in part due to the availability of more stable water resources in the Calumet Lacustrine Plain. Jeske and Stillwell (1994a, 1994b, 1995) during their large scale surveys of several development projects in Porter County established probable site densities within the Valparaiso Moraine. The surveys recorded a probable density of one site per 20 acres examined. Porter County was formed in 1836 and included the territory now comprised of both Porter and Lake Counties. At the time, Portersville was the county seat. In 1837, at the suggestion of the residents, the Indiana General Assembly changed the name of the county seat to Valparaiso, which is Spanish for "Vale of Paradise", to symbolize the beauty and wealth of the lakes and beaches and rich agricultural land surrounding it. Porter County was named in honor of Commodore David Porter of the U.S. Navy, whose famous battle during the War of 1812, while in command of the Essex, was fought near the harbor of Valparaiso, Chile. Commodore Porter captured seven British ships and took possession of the Marquesas Islands during this great exploit. Eventually, the Essex was blockaded by British ships in the harbor at Valparaiso and Porter was taken prisoner. Commodore Porter died in 1843. The county had an agricultural based economy until the railroads entered the region. As the area around Chicago grew, so did the industrial base of the county. Steel manufacturing, shipping, and industrial manufacturing became prominent in the major cities, but never really replaced the farming economy of the county (Barnhart and Riker 1971; Carmony 1966).

The General Land Office surveyor's notes of Liberty Township indicated that no known cultural resources were located near the current project area. Historic plat maps of

Porter County (Anonymous 1876) noted the presence of two schools, two houses, and a railroad within an approximate 1.0 mile radius of the project.

A review of the Division of Historic Preservation cemetery records for Liberty Township indicated that no known historic graveyards would be directly impacted by the project. However, Sunman cemetery was located within an approximate 1.0 mile radius of the project.

Archaeological Survey Methods

The approximate 4.0 acre tract examined for the proposed park playground project was currently located within portions of grass covered ground and woods. Ground surface visibility within the project area was estimated to have been 0%. Due to the lack of available ground surface visibility within the limits of the proposed park playground project, shovel testing was utilized. Shovel probe survey consisted of small test holes, approximately 35-cm in diameter and 35-cm deep, that were excavated across the project area at intervals of 15-meters along transects spaced 15-meters apart. Soil from the probes was screened through 6.4 mm mesh in an attempt to locate cultural materials. Soil conditions and the presence or absence of cultural materials were noted for each hole. In areas where shovel probes tested positive for cultural materials, additional probes were excavated at 5-meter intervals in the cardinal directions around the positive shovel test pit. Although the shovel probe technique will not find deeply buried sites, and may miss small or ephemeral sites, it is the most cost-effective, reliable form of archaeological survey in areas of low or zero surface visibility (Lightfoot 1986; Nance & Ball 1986).

If applicable, fire-cracked rock was noted but not collected during the survey. All cultural materials recovered during the course of the survey were taken to the ACO office for processing. All artifacts from the survey will be taken to Ball State University for curation.

Archaeological Reconnaissance Survey

On January 17, 2013, an archaeological reconnaissance level survey was initiated for the project area. The survey was conducted by Brent Alexander and Alan Miller with the author serving as Principal Investigator. The project consisted of an approximate 4.0 acre tract that was to be utilized for the proposed Children's Natural Playground within the Sunset Farm County Park (Figures 2 and 3).

The irregularly shaped parcel of land that was to be utilized for the project was located within the Sunset Farm County Park. The project area was bordered by an existing asphalt drive to the north, south, and west. Woods and grass covered ground bordered the survey area to the east (Figure 3). The majority of the project area was wooded with most of the grass covered ground being confined to the eastern limits of the proposed playground (Figure 3). A picnic pavilion was located within the project area (Figure 3).

The project area was shovel tested. Shovel testing of the playground area documented what appeared to be an agricultural plowzone across the majority of the

project. The plowzone appeared to extend up to 7-9 inches below the ground surface. Areas of non-agricultural disturbance were noted in probes that were excavated near the picnic pavilion and near the asphalt roadway that almost encircled the project limits.

During the course of the field reconnaissance, no archaeological sites were recorded. Shovel probe survey determined that the project area had experienced both agricultural and non-agricultural disturbance.

Data compiled from the large scale survey projects conducted by Stillwell and Jeske (1994a, 1995) within the county have suggested a prehistoric density within the region of one site per 20 acres studied. The current survey located no cultural resources within an approximate 4.0 acre tract. Although portions of the project area had experienced prior non-agricultural disturbance, the results of the field reconnaissance appear to fall within the prehistoric site density estimates formulated by author for the region (Jeske and Stillwell 1994a, 1995).

Conclusions and Recommendations

An archaeological field reconnaissance of the proposed Children's Natural Playground at the Sunset Farm County Park near Valparaiso, Porter County, Indiana located no archaeological sites. The field reconnaissance determined that the project area had experienced both agricultural and non-agricultural disturbance. Known sites in the immediate area range from significant habitation sites to single artifact find spots or low artifact density lithic scatters situated in disturbed agricultural settings as evidenced by previously referenced cultural resource management surveys. Because no archaeological resources were located during the survey, it is the opinion of the archaeologist that the proposed undertaking will not affect any archaeological properties eligible for listing on the National Register of Historic Places, and no further archaeological work is warranted. Project clearance is recommended. If human remains, features, or midden deposits are encountered during the construction of the proposed project, work must be halted and the archaeologists at the Indiana Department of Natural Resources-Division of Historic Preservation and Archaeology must be contacted for additional evaluation before work resumes.

References Cited

Angst, Michael
1995 *An Archaeological Field Reconnaissance of a Proposed Wastewater Facility, Porter County, Indiana.* Archaeological Resources Management Service, Ball State University, Muncie, Indiana.

Anonymous
1876 *Illustrated Historical Atlas of the State of Indiana.* Baskin, Forster, and Company, Chicago.

Baltz, Christopher J.
1986 *An Archaeological Reconnaissance of the Proposed I-94/County Line Road Project in Porter and La Porte Counties, Indiana.* Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington, Indiana.

Barnhart, John D., & Riker, Dorothy L.
1971 *Indiana to 1816-The Colonial Period.* Indiana Historical Bureau & the Indiana Historical Society, Indianapolis, IN 1971.

Bellis, James O.
1991 *Report of the Archaeological Reconnaissance for the Proposed New Runway Porter County Airport Valparaiso, Indiana.* Department of Anthropology, University of Notre Dame, South Bend, IN.

Bettarel, R. L. and H. G. Smith
1973 *The Moccasin Bluff Site and the Woodland Cultures of Southwestern Michigan.* Anthropological Papers 49. Museum of Anthropology, University of Michigan, Ann Arbor.

Blatchley
1897 *Geology of Lake and Porter Counties, Indiana.* In Indiana, Geological Report, pg. 87, Indiana Historical Society, Indianapolis.
1898

Brown, J. A. and O'Brien, Patricia J.
1990 *At the Edge of Prehistory: Huber Phase Archaeology in the Chicago Area.* Kampsville, IL: Center for American Archaeology Press.

Carmony, D. F.
1966 *A Brief History of Indiana.* Indiana Historical Bureau, Indianapolis.

Cunningham, W. M.
1948 *A Study of the Glacial Kame Culture in Michigan, Ohio, and Indiana.* Occasional Contributions No. 12. Museum of Anthropology, University of Michigan, Ann Arbor.

Doershuk, J.
1984 *Cultural Resources Investigations at Three Locations, Indiana Dunes National Lakeshore.* Report submitted to the National Park Service. Department of Anthropology, Northwestern University, Evanston.

Doheny, E. J., J. B. Droste, and R. H. Shaver
1975 *Stratigraphy of the Detroit River Formation (Middle Devonian) of Northern Indiana.* Geological Survey Bulletin 53. Department of Natural Resources. Bloomington, IN.

Droste J. B., and R. H. Shaver
1983 *Atlas of Early and Middle Palaeozoic Paleogeography of the Southern Great Lakes Area.* Geological Survey Special Report 32. Department of Natural Resources. Bloomington, IN.

Faulkner, C. H.
1966 *The Morrow Site: A Red Ochre Workshop Site in the Kankakee Valley, Indiana.* Wisconsin Archaeologist 45: 151-156.
1972 *The Late Prehistoric Occupation of Northwestern Indiana: A Study of the Upper Mississippian Cultures of the Kankakee Valley.* Prehistory Research Series No. 5. Indiana Historical Society, Indianapolis.

Freudenrich, T. D.
1978 *An Archaeological Reconnaissance Survey Porter County Airport Valparaiso, Indiana.* Department of Anthropology, University of Notre Dame, South Bend, IN.

Frost, Forest
1990 *Archaeological Inventory and Evaluation of Selected Areas, Indiana Dunes National Lakeshore, Indiana: 1980-1990.* Midwest Archaeological Center, National Park Service, Dept. of the Interior, Lincoln, Nebraska.
2001 *Archaeological Inventory and Evaluation of Selected Areas, Indiana Dunes National Lakeshore, Indiana: 1992-1995.* Midwest Archaeological Center, National Park Service, Dept. of the Interior, Lincoln, Nebraska.

Fugate, Thomas, et. al.
1999 *Phase I Cultural Resources Survey of the Vector Pipeline Corridor, Lake, Porter, LaPorte, and St. Joseph Counties, Indiana.* Gray and Pape, Inc., Cincinnati, OH.

Furr, Franklin G. Jr.
1972 *Soil Survey of Porter County, Indiana.* United States Department of Agriculture Soil Conservation Service and Purdue Agricultural Experiment Station, West Lafayette.

GLO
1834 *Notes of the General Land Office Survey, U.S. Lands in Indiana.* Indiana State Archives, Indianapolis.

Guernsey, E.Y.
1932 *Indiana: The Influence of the Indian Upon its History... (map).* Indianapolis: Department of Conservation, State of Indiana.

Gutschick, R. C.
1966 *Bedrock Geology.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 40-56. Indiana Academy of Science, Indianapolis.

Hart, J. P. and R. J. Jeske
1988 *North American Origins of Middlewestern Frontier Populations.* Annals of the Association of American Geographers 78: 395-413.
1991 *Models of Prehistoric Site Location for the Upper Illinois River Valley.* Illinois Archaeology 2: 3-22.

Homoya, M. A.
1985 *Map Showing the Natural Regions of Indiana.* Indiana Academy of Science, Notre Dame.

Jeske, Robert J.
1991 *The Davidson Site: A Huber Phase Upper Mississippian Burial and Habitation Site in Porter County, Indiana.* Northeast Indiana Archaeology Survey Report of Investigations No. 3. Indiana-Purdue University, Ft. Wayne, IN.
1992 *The St. Joseph River Valley: A Systematic Archaeological Survey in Allen and DeKalb Counties, Indiana.* Northeast Indiana Archaeological Survey Report of Investigations No. 2. Indiana-Purdue University, Fort Wayne.
1996 *Chesterton Postal Station: An Archaeological Investigation in Porter County, Indiana.* Northeast Indiana Archaeology Survey. Indiana-Purdue University, Ft. Wayne, IN.

Jeske, Robert J. and Stillwell, Larry N.
1994a *Benchmark Limited: An Archaeological Field Reconnaissance of a Proposed Development in Valparaiso, Porter County, Indiana.* Northeast Indiana Archaeology Survey, Indiana-Purdue University, Ft. Wayne, IN.
1994b *Benchmark Limited: Archaeological Test Excavations at 12-Pr-453 and 12-Pr-454 in Valparaiso, Porter County, Indiana.* Northeast Indiana Archaeology Survey. Indiana-Purdue University, Ft. Wayne, IN.
1995 *D.F. Hedg: An Archaeological Reconnaissance Survey near Valparaiso, Porter County, Indiana.* Northeast Indiana Archaeology Survey. Indiana-Purdue University, Ft. Wayne, IN.

Lightfoot, Kent G.
1986 *Regional Surveys in the Eastern United States: The Strengths and Weaknesses of Implementing Subsurface Testing Programs.* American Antiquity 51: 484-504.

Lindsey, A. A., W. B. Crankshaw and S. A. Qadir
1965 *Soil Relations and Distribution Map of the Vegetation of Presettlement Indiana.* Botanical Gazetteer 126: 155-163.

Mason, Ronald J.
1981 *Great Lakes Archaeology.* New York: Academic Press, 1981.

McAllister, J. Gilbert
1932 *Archaeology of Porter County, Indiana.* The Indiana Library and Historical Dept., Indianapolis, IN. William B Burford Printing Co.

Nance, Jack D. and Bruce F. Ball
1986 *No Surprises? The Reliability and Validity of Test Pit Sampling.* American Antiquity 51: 457-483.

Petty, P. O. and M. T. Jackson
1966 *Plant Communities.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 264-296. Indiana Academy of Science, Indianapolis.

Purtill and Goodfellow
1999 *Addendum Report: Supplemental Phase I and Phase II Archaeological Investigations of the Proposed Vector Pipeline Corridor, Site 12-Le-276 Reroute, in LaPorte County, Indiana.* Gray and Pape, Inc., Cincinnati, OH.

Quimby, G. I.
1941 *The Goodall Focus, An Analysis of Ten Hopewellian Components in Michigan and Indiana.* Prehistory Research Series 2 (2). Indiana Historical Society, Indianapolis, IN.

Schaal, L. A.
1966 *Climate.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 40-56. Indiana Academy of Science, Indianapolis.

Schneider, Allen F.
1966 *Physiography.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 40-56. Indiana Academy of Science, Indianapolis.

Schurr, Mark R.
1996 *The Bellinger Site (12-SJ-6) and the Origin of the Goodall Tradition.* Dept. of Anthropology, Notre Dame University, South Bend, Indiana.
1997 *The 1996 Archaeological Investigations at the Goodall Site (12-Le-9): A Middle Woodland Mound Group and Habitation Site in LaPorte County, Indiana.* Dept. of Anthropology, Notre Dame University, South Bend, Indiana.
1999 *Geophysical Survey of Middle Woodland Mounds in Northwest Indiana.* Dept. of Anthropology, Notre Dame University, South Bend, Indiana.

2001 *Archaeological Reconnaissance of the Habitation Area at the Weise Mound Site (12-Pr-35).* Dept. of Anthropology, Notre Dame University, South Bend, Indiana.

Skinner, R. R.
1950 *The Fifield Site [Porter v37], Upper Mississippi Manifestations in Porter County, Indiana.* In Indiana Academy of Science, edited by A. A. Lindsey, 38-44. Versailles State Park, IN.

Sipes, Eric D. and Natt, Wendy L.
1998 *Archaeological Reconnaissance of Approximately 75 Acres for the Lefty's Coho Landing Project in Portage, Porter County, Indiana.* Glenn Black Laboratory of Anthropology, Indiana University, Bloomington, IN.

Smith, Jeff, et. al.
1998 *Phase I Cultural Resources Survey of the Vector Pipeline Corridor, Lake, Porter, LaPorte, and St. Joseph Counties, Indiana.* Gray and Pape, Inc., Cincinnati, OH.

Stephenson, Ranel
1983 *Archaeological Field Reconnaissance: Valparaiso Industrial Development, Porter County, Indiana.* Archaeological Resources Management Service, Ball State University, Muncie, Indiana.

Stillwell, Larry N.
1997 *An Archaeological Field Reconnaissance of the Proposed C.R. 100 South Improvements in Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
1999 *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Site # NXTCHI-2811) near Portage, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2000a *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project # 077-U) near Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2000b *An Archaeological Field Reconnaissance of a Proposed Well Site in Hebron, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2001a *An Archaeological Field Reconnaissance of a Proposed Disposal Site in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2001b *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Site #2192B) near Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2002a *An Archaeological Field Reconnaissance of the Proposed U.S. 12 Entrance to the National Steel Midwest Division Property (Project #STP-N 306( ) Des. 0011800) in Portage, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.
2002b *An Archaeological Field Reconnaissance of a Proposed Landfill Project and Portion of the Upp-Wark Mound Complex near Kouts, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2002c *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #931-005-016-A) near Malden, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2002d *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #931-005-034-A05) near Kouts, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2003a *An Archaeological Field Reconnaissance of the Proposed Intersection Improvement at Mander Road and U.S. 6 (Project #STP-212-2( ), Des. 9901980) near Woodville, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2003b *An Archaeological Field Reconnaissance of the Proposed U.S. 12 Entrance to the National Steel Midwest Division Property, Additional Acreage, (Project #STP-N 306( ) Des. 0011800) in Portage, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2003c *An Archaeological Field Reconnaissance of the Proposed Intersection Improvement at US 20 and SR 149 (Project #STP-226-1(054), Des. 9136335) near Burns Harbor, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2003d *An Archaeological Field Reconnaissance of a Proposed Electrical Substation in Kouts, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2004a *An Archaeological Field Reconnaissance of the Proposed Bridge Replacement Over U.S. 20, 1.91 Miles East of S.R. 149 (Project #STP-226-2( ) and BR-226-2( ), Des. 9610380) in Chesterton, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2004b *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project # 017-4E030) in South Haven, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2004c *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project # 017-4E077) near Lake of the Four Seasons, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2005a *An Archaeological Field Reconnaissance of the Proposed New Interchange Construction at S.R. 49 and C.R. 400 North (Project #NH-089-1( ), Des. 9700360) in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2005b *An Archaeological Field Reconnaissance of a Proposed Buried Electrical Line in the Moraine Nature Preserve in Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2005c *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #IN-7852A) in Furnessville, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2005d *An Archaeological Field Reconnaissance of a Proposed Cellular Phone Tower (Project #IN-7112) in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2005e *An Archaeological Field Reconnaissance of a Proposed Land Parcel Exchange (Project #F-31 (29) and FA 31 Sec A, 1922) near Ogden Dunes, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2006a *An Archaeological Field Reconnaissance of the Proposed Eastgate Road Improvement Corridor (Project #STP-4464( ), Des. No. 9800910) in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2006b *An Archaeological Field Reconnaissance of the Proposed Fire Lane Access in the Dunes State Park, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2007 *An Archaeological Field Reconnaissance of the Proposed Porter County Municipal Airport Improvements in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2008a *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #HV-301) in Hebron, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2008b *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #HV-176) near South Haven, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2008c *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #HV-176-New Location) near South Haven, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2008d *An Archaeological Field Reconnaissance of a Proposed Telecommunications Facility (Project #HV-176-3rd location) near South Haven, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2009 *An Archaeological Field Reconnaissance of a Proposed Disposal Area (Project No. R-29010-A) near Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2010a *An Archaeological Field Reconnaissance of the Proposed Porter Hospital in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2010b *An Archaeological Field Reconnaissance of a Proposed Runway Expansion at the Porter County Municipal Airport in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2011 *An Archaeological Field Reconnaissance of a Proposed Access Drive and Parking Lot in Portage, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2012a *An Archaeological Field Reconnaissance of Two Proposed Borrow Areas in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2012b *An Archaeological Field Reconnaissance of a Proposed Borrow Area near Chesterton, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

2012c *An Archaeological Field Reconnaissance of the Proposed Chautauqua Park Stormwater Project in Valparaiso, Porter County, Indiana.* Archaeological Consultants of Ossian, Muncie, IN.

Struever, Stuart

1964 *The Hopewell Interaction Sphere in Riverine-Western Great Lakes Culture History.* In Hopewell Studies pp. 85-106. Scientific Papers 12. Illinois State Museum, Springfield, IL.

Tankersley, Kenneth B., Edward Smith & Donald Cochran.

1990 *Early Paleoindian Land Use, Mobility, and Lithic Exploitation Patterns: Updated distribution of Fluted Points in Indiana.* North American Archaeologist 11:301-19.

Ulrich, H.P.
1966 *Soils.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 57-90. Indiana Academy of Science, Indianapolis.

Wayne, W. J.
1963 *Pleistocene Formations in Indiana.* Geological Survey Bulletin 25. Department of Natural Resources, Bloomington, IN.
1966 *Ice and Land: A Review of the Tertiary and Pleistocene History of Indiana.* In Natural Features of Indiana, edited by Alton A. Lindsey, pp. 21-39. Indiana Academy of Science, Indianapolis.

Zoll, Mitchell K.
1995 *An Archaeological Field Reconnaissance of the Main Street Rehabilitation Hebron, Porter County, Indiana.* Archaeological Resources Management Service, Ball State University, Muncie, Indiana.

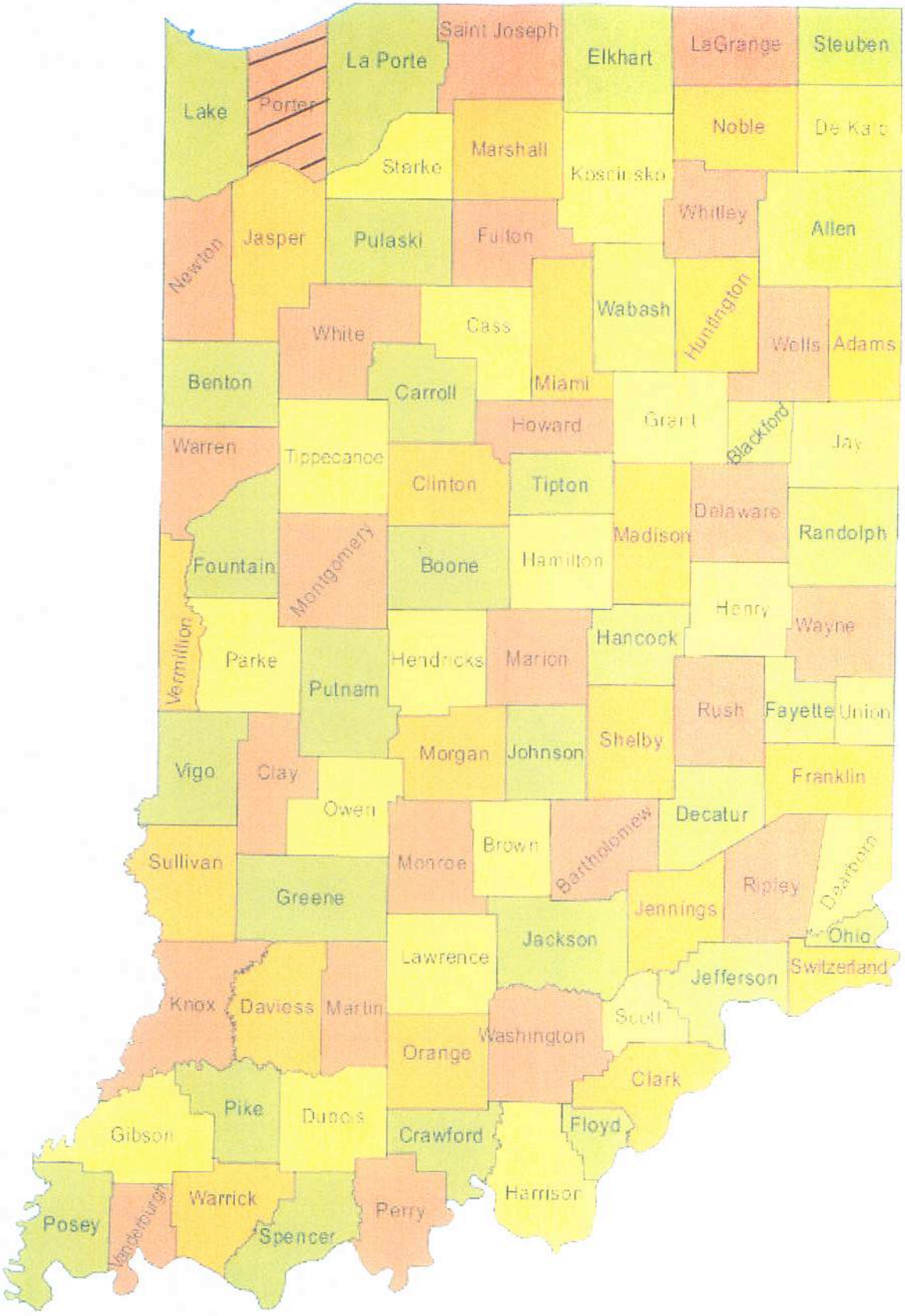


Figure 1. Location of Porter County within the State.

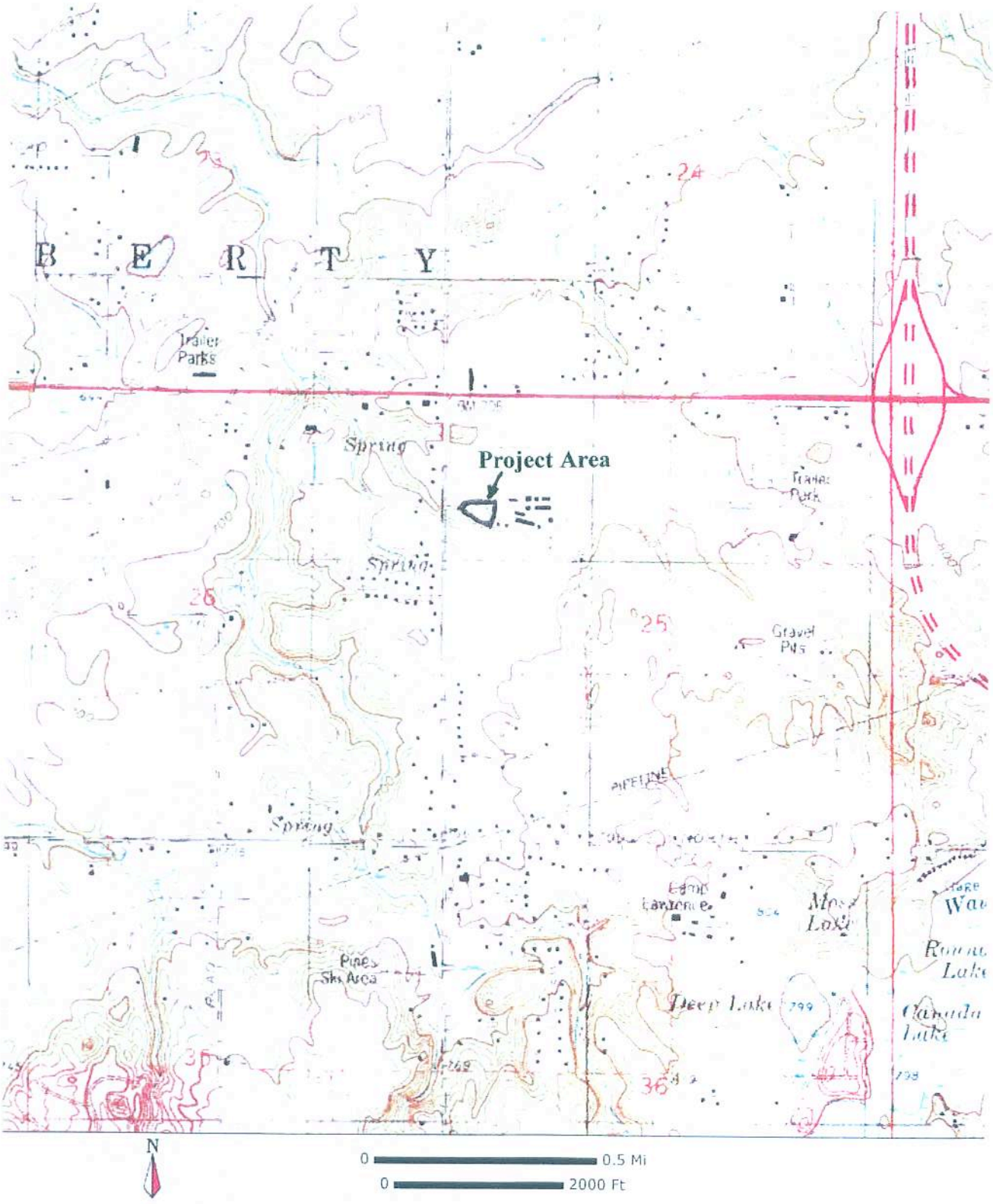


Figure 2. Portion of the USGS 7.5' Chesterton, Indiana Quadrangle showing the project location.

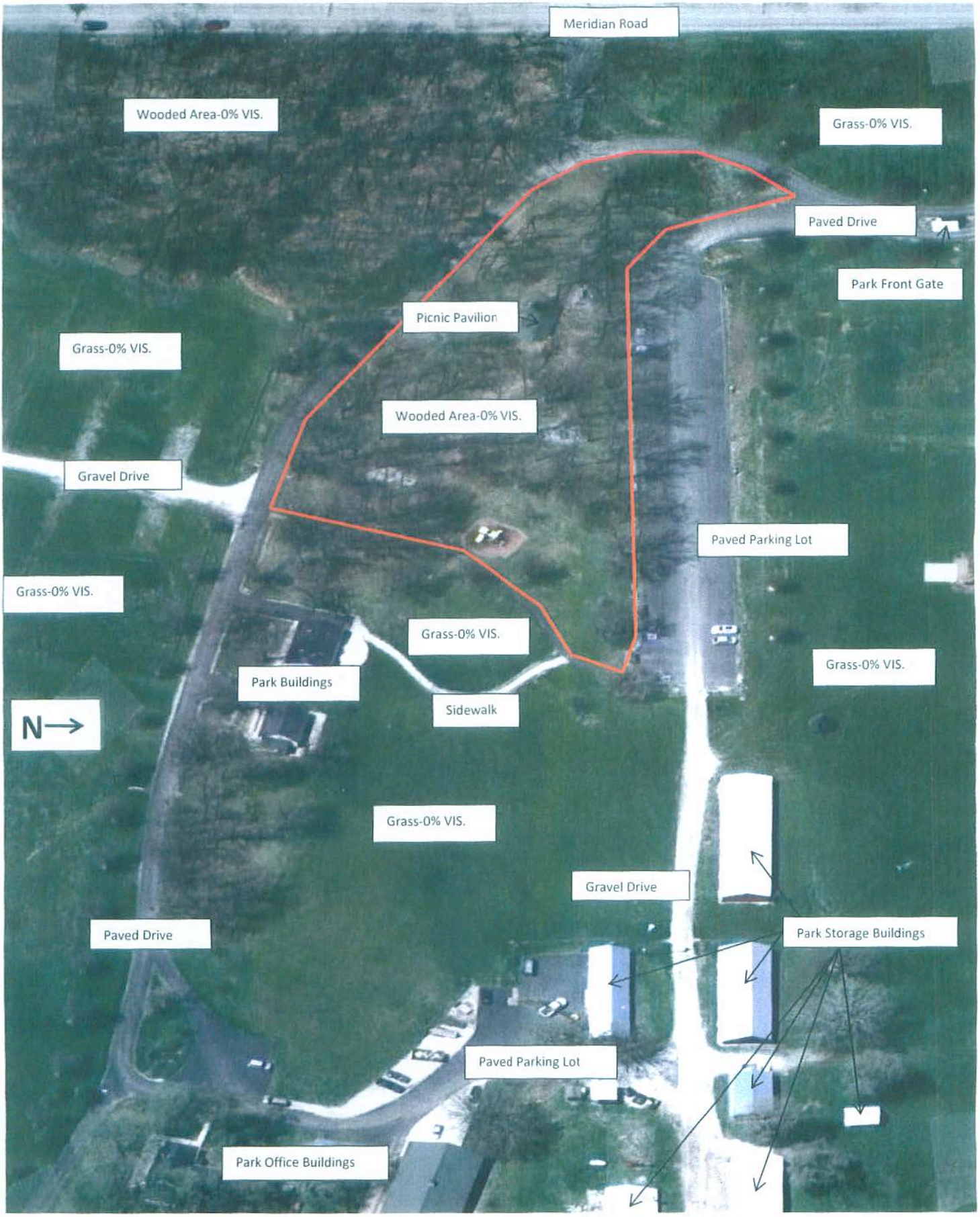


Figure 3. Aerial Map of the Project.