



UTICA TOWNSHIP LIME KILNS

HISTORIC
PRESERVATION
PLAN

Approved October 15, 2012





Ph: 502-394-3840 Fax: 502-426-9778 Toll Free: 1-800-513-6691
Project Office: Forum Office Park III, 305 N. Hurstbourne Parkway, Suite 100, Louisville, KY 40222

October 15, 2012

CTS-GEC-HPP-LTR0346
Reply Requested: YES
Date Requested: October 15, 2012

Mr. Ronald Heustis, Project Manager
Indiana Department of Transportation
100 North Senate Avenue, Room N642
Indianapolis, IN 46204-2249

Mr. Andy Barber, Assistant Project Manager
Kentucky Transportation Cabinet, District #5
8310 Westport Road
Louisville, KY 40242

Mr. Duane Thomas, Federal Project Manager
Federal Highway Administration – Kentucky Division
330 West Broadway Street
Frankfort, KY 40601

Reference: Louisville Southern Indiana Ohio River Bridges Project (Project)

Subject: BSHCT Recommendation on Updated Utica Township Limekilns Historic Preservation Plan

Dear Mr. Heustis/Mr. Barber/Mr. Thomas:

CTS-GEC has updated the Historic Preservation Plan (HPP) for the Utica Township Limekilns in accordance with Stipulations II.F.2.b. and III.H.1. of the First Amended Memorandum of Agreement (MOA) for the Project. This HPP provides a context to inform the implementation of specific mitigation measures as set forth in Stipulation III. of the MOA.

A draft HPP was presented to the BiState Historic Consultation Team (BSHCT) on August 30, 2012 for review and comment. Comments were received by September 30, 2012, and the HPP was revised. On October 1, 2012, it was returned to the BSHCT Co-chairs with a request for advancement of the HPP to the BiState Management Team (BSMT) for approval. This recommendation was received by the established deadline of October 15, 2012.

Therefore, in consideration of the above, CTS-GEC has been directed by the BSHCT Co-chairs to recommend that the BSMT approve the updated Utica Township Limekilns Historic Preservation Plan. With this approval, it is the intention of the BSHCT Co-chairs to distribute the final version of the HPP to the Indiana Historic Preservation Advisory Team (IHPAT).

Sincerely,

John Sacksteder
Project Manager, CTS-GEC



www.kyinbridges.com

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October 15, 2012

 10-15-12
Signature Approved
Mr. Ronald Heustis, Project Manager
INDOT

 10-15-12
Signature Concurred
Mr. Andy Barber, Assistant Project Manager
KYTC

 10-15-12
Signature Reviewed
Mr. Duane Thomas, Federal Project Manager
FHWA

cc: Mr. James Hilton, CTS-GEC
Mr. Jeff Vlach, CTS-GEC
Project Controls



Acknowledgments

The Utica Township Lime Kilns Historic Preservation Plan is the result of efforts by numerous individuals, citizen organizations, government agencies, and consultants. A plan that does not involve those it hopes to serve cannot fully realize its potential or vision. For this reason, those with a vested interest in the final outcome of this section of the interstate, and its impact on the cultural resources in Clark County, put forth their time, effort, and ideas in the creation of this Preservation Plan. It is appropriate to recognize and thank those who were an integral part of this important process.

Special thanks to the Indiana Historic Preservation Advisory Team (IHPAT) members and the numerous government officials, private organizations and citizens who provided valuable information and insight into this planning process. The members of the various advisory boards also deserve special recognition for their commitment to creating a project that benefits the southern Indiana region, and northern Kentucky.

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C H A P T E R O N E
The Ohio River Bridges Project

Project Introduction

INTRODUCTION

1.1 THE OHIO RIVER BRIDGES PROJECT PROCESS

Regional, cross-river mobility issues have been a point of discussion in the Louisville and Southern Indiana region as far back as the 1960s. At that time, a study was commissioned to evaluate the need for an “east end” bridge connecting southern Indiana and northern Jefferson County, Kentucky. In the early 1990s, continuing discussion over increased traffic congestion in the Louisville Metropolitan area, and specifically around “Spaghetti Junction”, culminated in the development of the Ohio River Major Investment Study (ORMIS). This initial feasibility study explored a broad range of regional issues and alternatives related to transportation benefits and potential economic impacts relating to additional, cross-river linkages. The preliminary results of the ORMIS, based on a limited number of factors, revealed the potential benefits of increased cross-river mobility between the two states outweighed potential negative impacts.

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To build on the results of the ORMIS, an Environmental Impact Statement (EIS) was initiated in 1998. As part of this process, an Alternatives Evaluation Report was generated that screened a series of transportation alternatives based on similar characteristics, public input, and impacts to environmental resources, into a smaller number of broader corridor alternatives. For example, sixteen options for an east end bridge alternative were consolidated into six alternatives for the purposes of the Environmental Impact Statement. The EIS took a more in-depth look at these alternatives by evaluating numerous factors including social, environmental, and cultural impacts on the region. Approximately 20 percent of the preliminary engineering for the various alternatives chosen to be carried forward was completed during the EIS phase in order to get a relatively accurate, “real world” comparison of the impacts of each transportation corridor option. This study, along with previous studies, explored the viability of “non-motorized” or alternative transportation options to alleviate existing vehicular traffic congestion. Following the completion of the FEIS in April

2003 and extensive public outreach and involvement, the Federal Highway Administration (FHWA) authorized the Ohio River Bridges Project in September 2003 by way of its Record of Decision (ROD).

The ROD identified the Two Bridges/Highway Alternative as the Selected Alternative. Based on the cumulative results of the ORMIS, the EIS, and public input in general, the FHWA, Indiana Department of Transportation (INDOT) and Kentucky Transportation Cabinet (KYTC) agreed that two new bridges and the reconstruction of the Kennedy Interchange south of its existing location was the most feasible, long term solution to meet cross-river mobility needs in the region. Following an inventory of existing conditions and analyses of several alternatives, it was determined the alignments selected (illustrated below) met the stated transportation needs with the least amount of impact to environmental resources and local communities.

The Selected Alternative included two new bridges over the Ohio River. The new I-65 bridge linked Downtown Louisville and Jeffersonville, Indiana. The second was located in the East



Ohio River Bridges Project Sections

End area approximately six miles upstream from the downtown bridge. It connected northeastern Jefferson County, Kentucky and Clark County, Indiana. Since approval of the ROD, the FHWA, INDOT and KYTC advanced the design of the Project and sought to satisfy various stipulations of the Memorandum of Agreement (MOA).

In early 2011, the Project’s lead agencies (FHWA, KYTC, and INDOT) initiated the preparation of a Supplemental Environmental Impact Statement (SEIS) for the Project due to the passage of time of the original FEIS/ROD, the present need for tolling revenues to assist in funding the project as determined through the Metropolitan Transportation Planning process, and the need to evaluate cost-saving measures in the Selected Alternative’s design. A Notice of Intent (NOI) to prepare the SEIS was published on February 15, 2011 in the *Federal Register*. The NOI included a project description, a discussion of the proposed action, an expected project schedule, and contact information. The Final SEIS was approved by the FHWA on April 20, 2012.

As part of the Revised ROD, the First Amended Memorandum of Agreement (First Amended MOA) was developed based on the original MOA. Updates contained within the First Amended MOA reflect new/revised stipulations based on changes made to the Project, as well as stipulations completed as part of the original MOA. The Revised ROD, including the First Amended MOA, was approved on June 20, 2012.

1.2 THE OHIO RIVER BRIDGES PROJECT COMPONENTS

The Ohio River Bridges Project (Project) is comprised of two primary components, the East End Crossing, administered by INDOT, and the Downtown Crossing, administered by KYTC. The East End Crossing will have the greatest impact on the four lime kilns.

1.3 PUBLIC PARTICIPATION PROCESS

Whenever the effects of proposed change, or development in general, could impact a community or communities, those potentially affected should always be given an opportunity to provide input into the decision-making process. Public involvement is essential in designing new bridges and roads that realize the numerous benefits and needs of communities, while minimizing their impacts. Through public meetings, newsletters and the Project’s web site, the Project design teams have provided information to the public and offered those affected a chance to comment on key design issues. Beginning in 1998 with the environmental impact phase of the Ohio River Bridges Project, the Project team has maintained open lines of communication with the public throughout the process utilizing several methods and tools. That effort will continue throughout this phase of the Project, allowing people to provide feedback on issues such as the bridge type selection process, aesthetic design issues, and impacts to nearby properties. The following is a brief description of the stakeholders involved in this public participation process.

Bi-State Management Team

The Bi-State Management Team (BSMT) consists of representatives from the following government agencies:

- Federal Highway Administration
- Indiana Department of Transportation
- Kentucky Transportation Cabinet

The Bi-State Management Team represents the final authority for approving implementation measures that avoid and/or mitigate the Project’s affect on historic properties. This decision-making body takes into consideration recommendations provided by the Bi-State Historic Consultation Team.

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Bi-State Historic Consultation Team

The Bi-State Historic Consultation Team (BSHCT) consists of representatives from the following organizations.

- Federal Highway Administration
- Indiana Department of Transportation
- Kentucky Transportation Cabinet
- Indiana State Historic Preservation Office
- Kentucky State Historic Preservation Office

This consultation team will assist the Bi-State Management Team (BSMT) in the development of Contract Provisions that are related to commitments in the First Amended Memorandum of Agreement (MOA). The BSHCT shall consider the recommendations of the Historic Preservation Advisory Teams, described below, when assisting the BSMT.

Historic Preservation Advisory Team

The Historic Preservation Advisory Teams (HPAT) are organized to ensure the Project is designed in a manner that respects the historic qualities, landscapes, buildings and features within the affected area(s), as defined by the MOA. There is a Historic Preservation Team for Indiana and Kentucky; the Indiana Historic Preservation Advisory Team (IHPAT) and Kentucky Historic Preservation Advisory Team (KHPAT) respectively. The role of each HPAT is to review and comment on Project design details, thereby assisting the Bi-State Historic Consultation Team and the Bi-State Management Team in implementing the stipulations of the Project's MOA. Members of the Indiana Historic Preservation Advisory Team involved in the Project include:

- Indiana Department of Transportation (co-chair)
- Indiana State Historic Preservation Office (co-chair)
- City of Jeffersonville Historic Preservation Commission
- Clark County
- City of Jeffersonville
- Town of Utica
- Jeffersonville Main Street Incorporated

- Clarksville Historical Society
- Town of Clarksville
- Clark County Historian
- Rose Hill Neighborhood Association
- Indiana Landmarks (formerly Historic Landmarks Foundation of Indiana)
- National Trust for Historic Preservation
- Jeff-Clark Preservation Inc.

A initial meeting was held September 16, 2008 to “kick-off” this historic preservation planning process. Since that time, a series of meetings has been held with the IHPAT to discuss issues and gather feedback on the plan’s content and process.

As the design process moved forward, the Project team presented information to the public about design concepts, bridge types and aesthetics. This public outreach effort provided affected communities and individuals numerous opportunities to provide feedback at various stages of the project’s development. The Bridges Project’s website (www.kyinbridges.com) also served as another outlet for the public to stay informed of the Project’s progress.

Area Advisory Teams

There are four Area Advisory Teams representing each of the four areas where a bridge approach will be built. They met with the Project’s design teams and provided feedback on design and aesthetic considerations relative to the specific needs of their respective communities in mind. The diverse organizations comprising these teams include environmental organizations, government agencies, neighborhood associations and preservation groups.

Regional Advisory Committee

This committee consists of nearly fifty organizations from Indiana and Kentucky representing a wide range of interests. Members

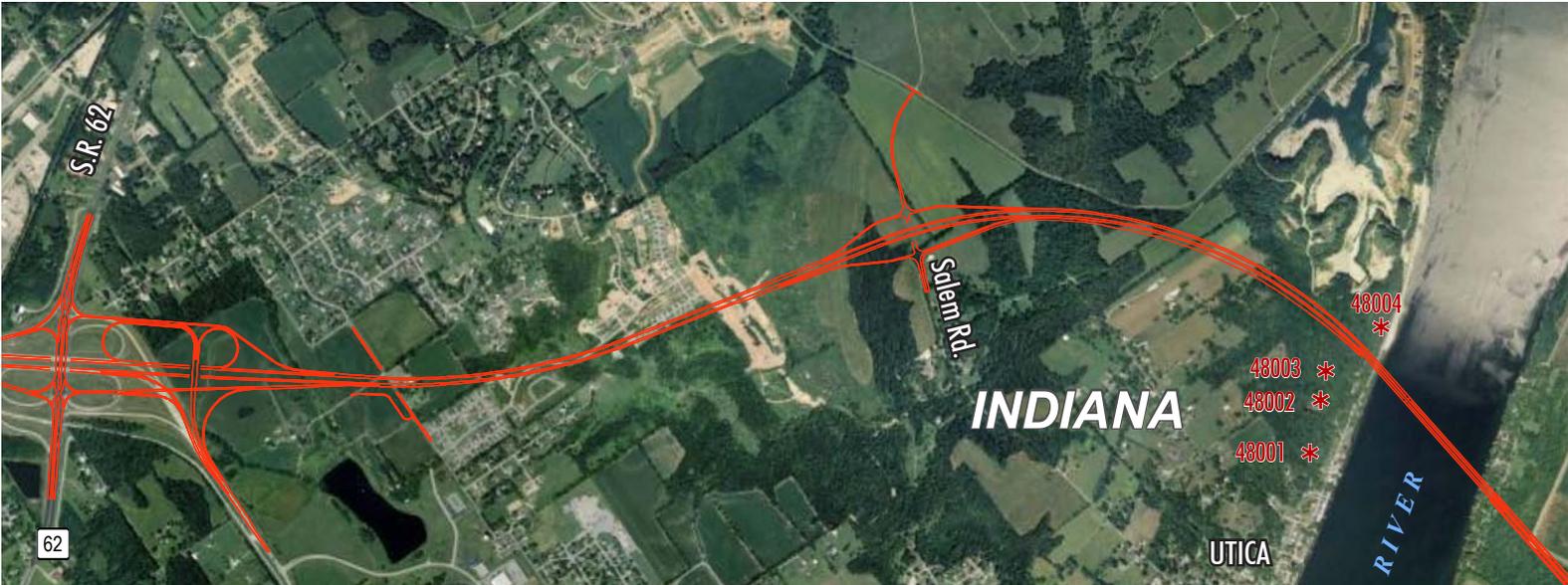
include key city and county government agencies, civic and community groups, trade associations, and environmental groups. The role of this committee is to review Project work and ensure regional issues are being addressed throughout the design and construction of the Ohio River Bridges Project.

To make responsible decisions about these historic resources, public participation was a critical part of this planning process. This preservation planning process provided an open forum for the discussion of relevant preservation issues for the lime kilns. Public involvement helped to define the value of the lime kilns and understand general preservation issues. Early and continuous public participation was an essential component for the broad acceptance of this HPP and its recommendations. The HPP will be reviewed and approved by the Indiana State Historic Preservation Office.

1.4 INTENT OF THE HISTORIC PRESERVATION PLAN

The section of the Bridges Project known as the East End Crossing will connect S.R. 265 (Lee Hamilton Highway) over the Ohio River north(east) of the Town of Utica to KY 841 (Gene Snyder Freeway), completing the loop around Louisville/Jefferson County and Jeffersonville/Clark County. Obviously, a project of the magnitude of the Ohio River Bridges Project has a tremendous impact not only on the lime kilns in Utica Township, but also on Clark County and the bi-state region as well.

Important historic resources such as the lime kilns cannot be replaced once destroyed. Preservation planning provides for the conservative use of properties and cultural features by preserving them in place, and avoiding harm when possible. The National Park Service has adopted the *Secretary of the Interior’s Standards for Preservation Planning* to guide historic preservation planning efforts. These principles apply to the study and development



S.R. 265 and East End Crossing Corridor - S.R. 62 to the Ohio River

Project Introduction

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of Historic Preservation Plans (HPPs) that establish the value of historic resources and create goals for preserving them. According to **Stipulation II.F** of the Project's First Amended Memorandum of Agreement (MOA):

"The BSMT, in consultation with the SHPOs and appropriate local governments, shall have HPPs prepared for historic properties and districts..."

"The HPPs will provide a context to inform the implementation of specific mitigation measures as set forth in [MOA] Stipulation III."

The two primary goals of this Historic Preservation Plan (HPP) include (1) documenting the unique characteristics, context, and historic significance of the four lime kilns, and (2) recommending ways to protect and preserve the kilns for future generations. Particular emphasis was placed on the avoidance, minimization and mitigation of adverse Project effects on these unique features. The aerial graphic on this page illustrates the approximate locations of the four lime kilns. For the purposes of the Project and this HPP, the kilns have been identified as 48001, 48002, 48003 and 48004.

1.4a Lime Kilns Historic Context and Existing Conditions

As with any planning process, it is important to understand the history surrounding a site or structure in order to propose relevant and effective recommendations. An inventory and analysis of existing conditions can also inform decisions for the future use of a property. Subsequently, **Chapter 2** details the historic context of the lime industry as well as its influence on the Southern Indiana area. **Chapter 3** includes an inventory of existing land uses, circulation patterns, and other relevant issues that could affect or influence the long-term function and viability of the lime kiln properties.

1.4b Utica Township Lime Kilns Project Stipulations

The Bridges Project's First Amended Memorandum of Agreement (MOA), dated March 23, 2012, updates the original 2003 MOA.

The MOA stipulates the development of Historic Preservation Plans as one of several efforts to mitigate the adverse effects of the Project. The Utica Township Lime Kilns HPP is one of six HPPs addressing several pertinent issues or objectives. Listed below are the eight MOA stipulations related to the Utica Township lime kilns addressed in **Chapter 4**.

Stipulation III.H.1:

The BSMT shall develop a HPP in accordance with Stipulation II.F to include a Context Study focusing on the development of the lime industry within the region and including the identification of significant lime industry structures with recommendations for preservation of the history of the lime industry in Utica Township/Southern Indiana. In consultation with the INSHPO, INDOT will develop and publish a pamphlet for public distribution presenting the results of the lime industry study.

Stipulation III.H.2:

Prior to initiating any construction activities within 1,000 feet of the individual lime kilns districts, the BSMT shall prepare a Condition Report of these resources that includes photographs to serve, in part, as a baseline to measure any construction related damage that may occur to the kilns. The documentation shall be at a level agreed upon between INDOT and INSHPO.

Stipulation III.H.3:

Prior to initiating construction activities, the BSMT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the three lime kilns identified as IE-HC-48002, IE-HC-48003, and IE-HC-48004 and associated archaeological sites 12 CI 561 and 12 CI 934 as set forth in Stipulation II.L. The location of these three kilns shall be noted in the plans for the contractor's use to

protect these resources. This plan shall include provisions for construction monitoring for this property.

Stipulation III.H.4:

The BSMT shall delineate a “no-work zone” around lime kilns identified as IE-HC-48001, IE-HC-48002, IE-HC-48003, and IE-HC-48004 and archaeological sites 12 CI 551, 12 CI 564, and 12 CI 934, as set forth in Stipulation II.N. The “no-work zone” shall generally extend 100 feet from the kilns. Because the associated quarries do not require preservation in place, portions of the quarries beyond the 100-foot boundary are not included within this restriction. Quarries that are adversely affected by the Project will be documented at a level agreed upon by INDOT and the IN SHPO.

Stipulation III.H.5:

The BSMT shall repair any damage caused as a result of Project construction to the three lime kilns, noted above, in accordance with accepted preservation standards and in consultation with the INSHPO.

Stipulation III.H.6:

The lime kiln identified as IE-HC-48004 has been determined to fall within the Clark County owned right-of-way of Upper River Road; the BSMT will work with Clark County to place a preservation easement for kiln IE-HC-48004 as set forth in Stipulation II.H.

Stipulation III.H.7:

The BSMT, in consultation with INSHPO, will develop and place an interpretive marker along Utica Pike as set forth in Stipulation II.K that describes the importance of the lime industry in the area and the significance of the kilns and quarries.

Stipulation III.H.8:

The BSMT will develop documentation for and seek NRHP nomination for the lime kilns and associated quarries as set forth in Stipulation II.I.

1.4c Additional Recommendations

Although kiln 48004 is the only kiln located within the Project’s right-of-way, the other three will also be examined in an effort to retain their historic context and integrity. The preservation of the three kilns located outside the Project’s “footprint” takes on added significance considering there are plans filed with Clark County to develop a residential subdivision on those sites. As part of the mitigation measures mentioned previously, the Bridges Project intends to work with the private landowners on which the remaining three kilns are located to develop feasible recommendations to appropriately stabilize and preserve them. Although the Bridges Project is NOT required to fund or implement these recommendations, this HPP proposes design recommendations that appropriately incorporate the kilns into the proposed residential subdivision setting. These recommendations are outlined in **Chapter 5**.

C H A P T E R T W O
Lime Kilns Historic Context

2.1 Purpose of the Historic Context

The development of a historic context serves as the foundation for decisions about the identification, evaluation, and treatment of historic resources. The information developed in this historic context serves as a framework for analyzing the four lime kilns identified in the Project's Memorandum of Agreement to determine the associations or physical features make them historically significant. According to the Project's MOA, **Stipulation II.F.1.f** states the HPP will:

"...recognize the unique character, context, and historic significance of each resource/area and will identify ways to protect and enhance the historic qualities found there, particularly those

related to the avoidance, minimization, and mitigation of adverse Project effects."

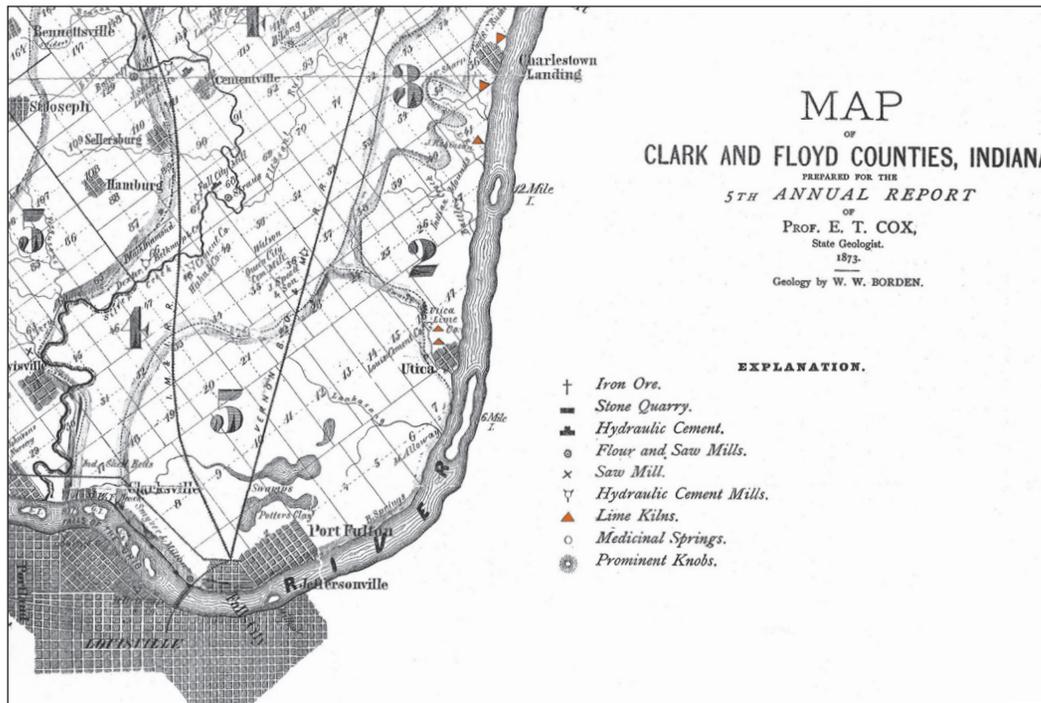
Furthermore, **Stipulation III.H.1** states:

"The BSMT shall develop an HPP in accordance with Stipulation II.F to include a Context Study focusing on the development of the lime industry within the region and including the identification of significant lime industry structures with recommendations for preservation of the history of the lime industry in Utica Township/Southern Indiana."

This exercise is also part of the ongoing research conducted as part of the Bridges Project, and provides Project designers with an important overview of the historic nature of the lime kilns.

Such an understanding will inform designers when developing *Context Sensitive Design* solutions for the East End Crossing, as well as other mitigation measures within Utica Township and Clark County.

This chapter provides a discussion of the lime industry's history, production methods, the industry's development in Indiana, and its influence on the development of Utica Township. Much of the information in this chapter was taken from the National Register nomination for the Lime Manufacturing Resources of Utica, Indiana, multiple property nomination. The information has been reorganized slightly in order to be more relevant within the scope of this HPP. This information, along with previous Project research pertinent to the EIS and Section 106 review, can collectively serve as a catalyst for further research relevant to the lime kilns in Utica specifically, and the lime industry in general throughout Southern Indiana.



1873 Map of manufacturing activities

2.2 ORIGINS OF LIME PRODUCTION

Lime production in Indiana dates to the late eighteenth century. As early settlers cleared forests to make way for agriculture, they used the felled timber to burn locally mined limestone. The settlers used the material to condition their fields and to make whitewash and mortar. Processing was limited largely to domestic use, with most of the material remaining on the farms upon which it was made (Ault et. al 1974:7). Lime production gradually increased as Indiana's population grew and its transportation network improved. An abundance of good-quality Indiana limestone made quicklime production an attractive prospect for enterprising industrialists. By the 1850s Indiana lime production had developed into a significant industry.

The heyday of commercial quicklime production in Indiana lasted from roughly 1850 to about 1900. During that time the making of lime evolved from a small-scale process, aimed at local consumption, into a significant industry capable of meeting large-scale demand. In 1889, Indiana ranked seventh in the country for lime production (Day 1890: 641). By 1900, the Indiana lime industry had receded to a handful of plants. Consolidation of companies had much to do with the decreasing number of manufacturers, but decreasing demand also played a role. By 1905, the demand for Portland cement was eclipsing that of natural cement, which had been the most common use for Indiana quicklime. Lime, however, remained a component of Portland cement mortar and concrete until about 1930, when advances in Portland cement negated the need for lime. During the Great Depression of the 1930s, surviving lime producers found it difficult to renovate existing plants, making it increasingly unprofitable to manufacture. By 1940, only two plants remained active in the state. Demand slowly increased during the 1940s, but Indiana's lime producers made little effort to compete with those in Ohio, which had access to cheaper transportation and nearby markets. The last Indiana lime plant using native stone ceased operation in 1953 (Ault, et. al. 1974:39-40).

2.2a Overview of Lime

Lime, also known as quicklime, is the product of either heated limestone or dolomite. The process of heating limestone to make quicklime is known as calcining. To calcine limestone or dolomite the raw material must be heated to temperatures ranging from about 725°C to 900°C, depending on the composition of the stone. During this process the heat drives off carbon dioxide (CO₂), leaving calcium oxide (CaO) and small amounts of impurities, such as silica, alumina, and magnesium. When pure, quicklime is a fine, white powder. Impurities in the stone, however, often give quicklime a yellow or blue tint. To produce mass quantities of lime suitable for a variety of applications it is necessary to keep impurities to a minimum—as little as 2 percent or less. It is imperative, therefore, to use only the purest of limestone or dolomite.

Historically, lime has seen a wide variety of applications. During the first half of the nineteenth century, farmers used lime to condition their fields. Until the advent of Portland cement and gypsum in the late nineteenth century, lime was a primary ingredient in natural cement and plaster. The manufacturing and chemical industries utilized lime in the manufacture of numerous products including brick, rubber, gelatin, medicines, explosives, petroleum, glass, ceramics, water purification, bleaching powder, illuminating gas, ammonia, insecticides, sugar, paper, paints, glycerin, lubricants, and candles (Hockensmith 2009:16).

As of 1906, 86 percent of lime was used for building purposes, while 8 percent was used for chemical and manufacturing processes, and 6 percent was used for agriculture (Ault, et. al 1974:3). By 1934 the role of lime had shifted considerably, with only 27 percent of the product going into building materials, while 64 percent was going into chemical and manufacturing processes, and 10 percent used for agriculture. In 1970, a mere 8 percent of lime was being used for building, with 91 percent going into chemical and manufacturing, and only 1 percent into agriculture (Ault, et. al. 1974:4).

2.2b Sources of Lime in Indiana

Extensive beds of limestone and dolomite are found throughout the Midwest. The chemical composition and quality of the stone, however, varies drastically from one region to another. Limestone and dolomitic lime were used for many of the same applications. Because lime was a low-cost bulk commodity, it was important for lime producers to locate sources of high-quality materials that could satisfy the requirements of many different end uses.

Lime producers in Indiana, Ohio, and Illinois relied on two types of source material: high-calcium limestone and high-purity or high-magnesium dolomite. Mississippian age Salem and Harrodsburg limestones and Paoli and Ste. Genevieve limestones are the best sources for high-calcium limestone in the state. Near the south central region of Indiana, in Owen, Monroe, and Lawrence Counties, deposits of Salem and Harrodsburg limestone can contain as much as 97 percent calcium carbonate. Layers of this material can measure fifty feet in thickness. Layers of high-calcium Paoli and Ste. Genevieve limestones are typically less thick than those of the Salem limestones. Though not as thick, the purest limestone in Indiana comes from the oolitic facies of the Ste. Genevieve limestones. Purity levels averaging 98 percent calcium carbonate have been analyzed in layers of Ste. Genevieve limestone measuring twenty-eight feet thick (Ault et. al 1974:34-35).

In Indiana, high-purity dolomite is located in the northeastern and north-central regions of the state. The largest and purest deposits of dolomite are located in the Wabash Formation of north-central Indiana. But much of the material is buried under hundreds of feet of glacial drift, making recovery unfeasible. In a few areas, however, the overburden is shallow enough to permit mining of the material (Ault et. al 1974:35).

2.2c Lime Processing Methods

The most common technique for calcining lime during periods of early settlement was the “log heap” method. Log heaps

consisted of nothing more than a bed of fresh-cut logs upon which a pyramid-shaped heap of brush was piled. A pyramid of limestone spalls was added to the top of the log heap, which was left to dry for as long as six months. Once the lime-makers deemed the logs and brush thoroughly dry they set it afire. The heap burned for approximately forty-eight hours, after which the remaining quicklime was ready for use (Ault, et. al. 1974:7-8). This method was commonly employed throughout Indiana from the late eighteenth century until at least the 1820s. Although, it is quite possible that log heaps continued in use well into the nineteenth century by farmers who required limited quantities of lime for soil conditioning.

By the 1830s, most lime producers in Indiana were using intermittent “pot” or “groundhog” kilns to calcine limestone. As the name suggests, groundhog kilns are recognizable by their partial enclosure within an embankment or earthen mound. Built from local stone, these kilns exhibit design characteristics unique to the builder and the surrounding topography. Due to the fact that lime burners built these structures according to their own inclinations, as well as taking advantage of locally available building materials and the existing site topography, these kilns vary from site to site. Common features include a rounded or square-shaped stone structure that houses the pot-shaped combustion chamber; an arched firebox and draw-off entrance at the bottom of the kiln; and an earthen embankment into which the kiln was built. The hill or embankment facilitated the loading or “charging” of limestone into the top of the kiln, which might extend from several feet to one or more stories above the foundation of the structure.

Lime makers made an arch of limestone near the lower section of the kiln then stacked additional limestone atop the arch until stone protruded from the top of the kiln. Combustible material was placed under the arch of stone then set afire. The process required three or four days of burning to produce quicklime. Groundhog kilns operated intermittently, meaning that each

batch of lime required a cool-down phase prior to removal of the product. Depending on the size of the kiln, a batch might require three or four days to complete (Ault et al. 1974:9).

The intermittent groundhog kiln marked a significant step forward in the evolution of lime burning technology. More efficient than the previous method of burning lime in log heaps, the groundhog kiln enabled lime manufacturers to increase production while reducing the amount of time and fuel required to process limestone spalls. Due to their relatively small size and the need for a cool-down phase between batches, these kilns remained unsuitable for production on an industrial scale. Nevertheless, groundhog kilns afforded lime burners the opportunity to manufacture enough lime to supply markets beyond the immediate area. As a result, these kilns provided local lime manufacturers the experience needed to produce lime on a larger scale. In this manner, the groundhog kiln became an indispensable component in the evolution of the lime industry. Groundhog kilns remained common throughout the Midwest and South for much of the nineteenth century. Their simple construction made them ideal for small-scale lime production, such as that associated with local agriculture and construction. Such kilns were common throughout Indiana during the early nineteenth century (Ault, et. al. 1974:9).

By the 1870s, the groundhog kiln had been largely replaced by more efficient “perpetual” or “continuous” kilns that could burn uninterrupted for long periods of time. This development eliminated the need for cooling the kilns, allowing for continuous addition of fuel and lime as well as withdrawal of burnt lime. The most common examples of perpetual kilns were of either the vertical or rotary type. In Indiana, most vertical kilns were built to either “pot” or “flame” kiln designs. Pot or “mixed feed” kilns contain vertical, cylindrical shafts, typically six to ten feet in diameter and between forty to fifty feet in height. Limestone and fuel are loaded into the cylinder in alternating layers. The finished product is removed from the bottom of the kiln

and new stone and fuel are loaded from the top. Because the lime and fuel are loaded in alternating layers, the quicklime is contaminated by fuel ash, which must be sifted from the lime. Despite the contamination issue associated with mixed feed kilns, they proved economical, and consequently saw wide use throughout the country. Such kilns commonly were employed at lime-manufacturing sites by the mid-1870s (Emely and Porter 1927:9–10; Ault et al. 1974:9). A variant known as the “flame” kiln employed a vertical, cylindrical steel shaft surrounded by a firebox, separating the lime from the fuel and eliminating ash contamination. (Ault, et. al 1974:10-11).

Experiments with rotary kilns started in 1885 but the design was not considered commercially viable until 1890. These kilns include a large, nearly horizontal revolving steel cylinder in which lime is cooked. A large gas or coal-fired flame is blown in through the lower end of the cylinder, while lime is fed through the opposite end. As the cylinder rotates the lime slowly gravitates toward the lower end of the kiln, where it eventually falls through an opening prior to landing in a cooler. These kilns were developed toward the end of quicklime production in Indiana and, therefore, probably played a much larger role in the production of Portland cement which, by about 1905, had largely replaced lime cement as a building material.

2.3 LIME PRODUCTION IN INDIANA

With an abundance of limestone and dolomite located throughout Indiana, early settlers in the region experienced little difficulty locating quantities of the material sufficient for domestic use. Vast beds of Mississippian limestone extend from the northwest corner of the state toward the Ohio border, then south to the Ohio River. From Putnam County in south central Indiana, immense beds of Silurian and Devonian dolomites and limestone extend south to Crawford and Harrison Counties on the Ohio River (Ault et. al 1974:12).

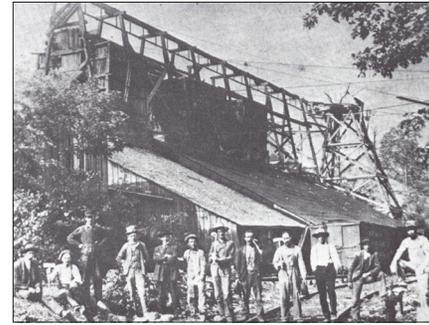
During the early years of settlement, log heaps and ground hog kilns met the regions' limited demand for quicklime. Production was limited to local use, where it was typically used to neutralize soil prior to planting crops. During the first half of the nineteenth century, much of the country's limestone was produced by farmers who owned and operated their own kilns. Requiring limited quantities of lime, farmers utilized even the smallest of limestone beds (Ault, et. al. 1974:6-7). So common was the practice of making lime that, before 1850, at least forty counties in Indiana contained kilns. The majority of production occurred in the Wabash River valley in northern Indiana and in south-central Indiana. By the late nineteenth century, most of the state's lime producers were concentrated within a few towns and cities. Good quality limestone, access to efficient transportation, and open markets determined the success or failure of the various lime producing centers (Ault, et. al. 1974:12).

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Prior to 1874 much of Indiana's limestone traveled the Wabash and Erie Canal, which paralleled the Wabash River valley between Toledo, Ohio, and Evansville, Indiana. The canal opened in 1843, when it reached the Wabash River port of Lafayette, Indiana. The southern section of the canal connecting to the Ohio River at Evansville, Indiana, opened in 1853. Competition from the parallel Wabash Railroad, completed in 1856, brought about a rapid decline in canal traffic. Upon the closure of the canal in 1874, the state's burgeoning rail network acquired a monopoly on lime shipments (Ault, et. al. 1974:12).

2.3a Southern Indiana Lime Industry

In south-central Indiana, a narrow band of Mississippian age limestone extends from the north end of Putnam County to the Ohio River. The purity of certain layers of this stone, combined with the easily accessible outcrops, made southern Indiana's Mississippian age limestone attractive to lime producers. The majority of lime kilns processing this material were clustered in Putnam and Lawrence Counties. In southeastern Indiana, lime manufacturers utilized Silurian and Devonian dolomites



Ohio & Western Lime Co., Oolitic, Indiana - 1907

The Lime Industry of Indiana - Curtis H. Ault et. al.

and limestones. A few scattered operations processed lime in Shelby, Decatur, Bartholomew, Ripley, and Jefferson Counties, but the largest concentration of lime producers working with these deposits was located near the Ohio River

in Clark County, where production began as early as 1818. Although production figures for individual lime plants are limited, the number of lime producers in Clark County suggests that it was rivaled only by Lawrence, Carroll, and Huntington Counties.

In Putnam County, near the northern end of the Mississippian age limestone beds, lime producers calcined Ste. Genevieve limestone. The first lime kilns in the area were built at Limedale in 1856. By 1874, at least three other quarries and lime kilns were in operation at Oakalla, located roughly three miles west of Greencastle. By 1903, lime production around Greencastle had ended. The Indiana State Farm near Putnamville was the last manufacturer of quicklime in Putnam County, calcinating small amounts of lime in beehive kilns for agricultural use between 1924 and 1969 (Ault et. al 1874:29).

Lime producers began using Salem and Ste. Genevieve limestones near Bedford and Mitchell prior to the Civil War. Known commercially as "Indiana Limestone," this material produces superior dimensional, architectural limestone. The stone also provided a good source for quicklime, as evidenced by Asa Erwin, who produced 17,500 bushels of lime in 1873 (Ault, et. al 1974:19). Located about two miles north of Mitchell, Erwin's quicklime operation consisted of a pair of pot kilns.

The Mitchell Lime Company took over Erwin’s kilns in 1895, adding them to a number of kilns already in operation by that company. By 1900 the Mitchell Lime Company had grown large enough that it spawned development of a company town. Called Rabbitville, the community consisted largely of quarry and lime plant employees. Eventually, the expense of removing overburden from the limestone exceeded practical limits. By the 1930s the Mitchell Lime Company had shut down all of its kilns in the Mitchell area (Ault, et. al 1974:20).

At least one operation near Bedford produced quicklime. Unlike the Mitchell operation, which quarried and crushed stone specifically for lime, the Bedford concern utilized waste stone from dimensional stone quarries. Called the Horseshoe Lime Company, the operation was purchased by the Ohio and Western Lime Company in 1907. The operation could produce 12,000 to 13,000 bushels of lime in a month. Shipped over the Monon Railroad, Ohio and Western lime sold at markets throughout the Midwest. By 1915, the Indiana Lime Company had acquired the Ohio and Western Lime Company. As Portland cement increased in popularity, demand for Bedford quicklime decreased. All lime production at the site came to an end in the early 1930s (Ault et. al 1974:22).

At least three companies burned lime at Salem, located roughly twenty-five miles southeast of Mitchell, from about 1884 until 1932. The source rock near Salem is the same as that in the Bedford-Mitchell district. Certain layers of Salem limestone exceed 98 percent total carbonate, making it exceptionally good for quicklime production.



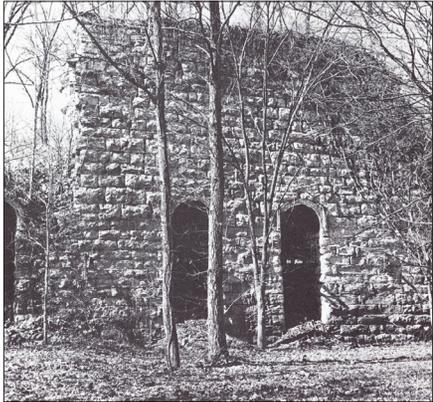
Vertical lime kilns near Salem, Indiana

The Lime Industry of Indiana - Curtis H. Ault et. al.

The stone was taken from open-pit quarries and underground mines. Local lime operations used stone and steel kilns to process the source material (Ault et. al 1974:28). Several factors contributed to the end of lime production at Salem, including slow production, high overhead cost, and lack of capital to invest in more efficient equipment. All lime production at Salem ended by the early 1930s (Ault et. al 1974:29).

At Milltown in Crawford County, lime producers quarried and mined Ste. Genevieve limestone from the banks of the Blue River. In 1887, J.B. Speed built a pair of stone kilns and a pair of steel kilns near the west bank of the Blue River. The stone kilns had a capacity of 375 bushels per day, slightly less than that produced by the steel kilns. As of 1903, Speed’s plant was the only operation in the state producing hydrated lime. Among other applications, such lime was used to condition soil and make mortar (Ault et. al 1974:24-25).

On the east bank of the Blue River at Milltown, the Eichel Lime & Stone Company built three steel kilns in 1903. The



Vertical lime kiln near Milltown, Indiana - 1885-1915

The Lime Industry of Indiana - Curtis H. Ault et. al.

product was shipped to markets throughout neighboring states. The Louisville Cement Company bought the Eichel operation in 1913. The new owners added a rotary kiln to the facility in 1921. The Louisville Cement Company closed their Milltown quicklime operation in 1953 (Ault et. al 1974:26).

2.3b Clark County and Utica Township Lime Industry

In Clark County in southeastern Indiana, lime producers mined dolomitic limestone found on the bluffs of the Ohio River. Like all lime-manufacturing enterprises, the lime industry of Utica entirely was dependent upon access to high-quality limestone and dolomite. Due to the immovable nature of quarries, and the weight and bulk of the mined materials, the location of lime quarries had much to do with the placement of kilns, their ancillary components, and the transportation networks that moved raw and finished products. In effect, the quarries anchored the entire operation and all subsequent stages of the lime-making process radiated from these open pit mines. Consequently, the story of Utica's lime industry begins and ends with the development of its lime quarries.

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As early as 1818, settlers around Utica Township processed limestone to make quicklime. During these early efforts, calcination was achieved by placing locally mined limestone inside bonfires made of logs and brush. Despite these primitive methods, capacity proved sufficient to export flour barrel-loads of quicklime to river ports as far south as New Orleans. During the early years of production, however, lime shipments were probably nothing more than cargo filler aboard flatboats loaded with pork, flour, and whiskey (Baird 1909:399).

Increasing profits motivated local lime manufacturers to experiment with more efficient production methods. A Mr. Starkweathers built an intermittent pot kiln about one half mile upriver from Utica by 1826. Located on property later owned by Nicholas Lentz, the kiln relied on Pittsburgh coal for calcination and remained in operation until 1847 (Baird 1909:399). A contemporary account reports that lime production was then the town's primary source of income. A journal entry recorded by Allen Lapham on July 6, 1828, notes that Utica then contained about 40 or 50 houses and that the village's business "is very little being principally what arises from the manufactory of Quicklime, and brick, and of supplying the Steam Boats with

wood." While inspecting the rock formations along the bluffs of the Ohio, Lapham "passed along on the top of the ledge in a direction leading up the river and came to the place where the quarry of stone for the lime kiln is [located]" (Thomas and Conner 1973:52-53).

About 1830, a Pennsylvania man named Peabody introduced the groundhog kiln to Utica. Around this period, Robert G. Wood, James Sweeney, and William Brendel went into business shipping lime to Louisville, where it was packaged in large quantities and re-shipped to more distant markets. During the 1840s, Sweeney entered the lime-burning business with partners Allen Somers and, later, James Hogg. They were followed by Henry C. Emmerke and Mechac James, who also shipped lime to Louisville. Other principal Clark County lime manufacturers of the Antebellum Period included Jack Howard, Floyd Ogden, Redford Perry, Jacob Robinson, and Lyman Parks (Baird 1909:399; Kramer 2007:92).

By the 1840s, lime had become the county's most important extractive industry and further efforts were made to improve production. Utica native Napoleon Bonaparte Wood made significant strides in this area when around 1850 he improved the ground hog kiln by building a temporary wall in front of the furnace. Wood's modified ground hog kilns improved fuel efficiency, making quicklime production more profitable. Perhaps as a result of these efforts, the first large shipment of lime left Utica for New Orleans about 1850. Consisting of 5,000 barrels, the shipment marked a significant increase in the direct exportation of lime from Clark County (Baird 1909:400; Kramer 2007:92).

In 1850, a total of seven companies manufactured lime in Clark County. Two of these companies, Keller & Morgan and George James, were located in Jeffersonville Township. The five remaining Clark County lime producers were all located in Utica Township and included E.J. Higrat, Allen Summers, James

Morrow, Napoleon Wood, and Robinson & Pang. The Higrat operation employed one hand and produced 2,000 barrels of lime valued at \$1,250 per year. Allen Summers employed two male hands and produced 3,600 barrels of lime valued at \$2,160. James Morrow's company employed three male hands and produced 6,500 barrels of lime valued at \$3,900. Napoleon Wood employed no workers other than himself and managed to produce 900 barrels of lime valued at \$403. Finally, Robinson & Pang employed three male hands and produced 6,000 barrels valued at \$1,560. These figures are likely rough estimates but they nevertheless provide some indication as to the size of the companies in operation during the time of the 1850 census (Hockensmith 2009:75; United States Federal Census 1850).

The 1850 U.S. Population Census for Utica Township probably does not include all of the lime burners and quarrymen employed in the county, but 17 residents listed their occupation as "lime burner." One individual listed his occupation as "rock quarry," indicating that he might have either quarried dimensional stone, limestone for burning, or possibly both. All quarrymen men likely worked at quarries in the immediate vicinity of their residences (Hockensmith 2009:77; United States Federal Census 1850). Wages for quarrymen in 1850 are not readily available, but the manufacturing census indicates that lime burners earned about \$20 per month (Hockensmith 2009:75; United States Federal Census 1850).

By 1860, only six Utica Township residents listed their occupation as lime burners, with another five identifying themselves as quarrymen (Hockensmith 2009:77; United States Federal Census 1860). Nevertheless, annual lime production was measured in the tens of thousands of barrels. As Richard Owen noted in his 1862 *Report of a Geological Reconnaissance of Indiana, at Utica*, "large quantities of lime are burned from Devonian rock, in beds about twenty feet thick, with fossils only in the lower layers; surmounted by ten to fifteen feet of chert and reddish clay. As nearly as we could ascertain they ship annually

from this place 100,000 barrels of excellent white lime, chiefly burnt in fire kilns, some of which hold 350 barrels and are charged fifty or sixty times a year" (Owen 1862:106).

The 1860 U.S. Census of Manufacturing for Clark County suggests that Owens' estimates were reasonably accurate. In Utica Township the census records include M.M. James, and Moses H. Tyler & Harrod. The James outfit employed five male hands and produced 50,000 bushels of lime valued at \$7,500. The Tyler & Harrod operation employed three male hands and produced 18,000 bushels of lime valued at \$3,600.

The only other Clark County lime manufacturer listed in 1860 was T.J. Howard of Jeffersonville Township, employing seven male hands and producing 50,000 bushels of lime valued at \$10,000. (Hockensmith 2009; United States Federal Census 1860).

Census figures suggest that profits varied considerably among firms. Factors contributing to these discrepancies may include the various types of kilns employed by manufacturers, the quality of stone burned, and the efficiency with which it was quarried and transported to the kiln. Regardless, the industry remained relatively limited in size and capacity until the late 1860s. After that period lime production expanded significantly. Manufacturing and population census records of the 1870s and 1880s indicate that Charlestown and Jeffersonville Townships also contributed to the county's lime industry, but Utica Township was the county's primary lime-manufacturing community.

Introduction of large, vertical draw kilns at Utica signaled the beginning of lime burning on an industrial scale. Better financed and organized, lime burners of the late 1860s and 1870s erected large double-chambered, continuous kilns capable of burning lime around the clock for days or weeks at a time. The large vertical kilns of Utica represent the apex of the area's lime-burning industry. These kilns helped transform the Utica lime

industry into a significant enterprise, paralleled by only a handful of lime-burning districts in the state. During the height of lime production in the 1870s and 1880s, Utica lime manufacturers shipped their products to riverfront communities up and down the Ohio River.

At an unknown date, two men by the name of Sable and Gilmore built a cement mill in or near Silver Creek Township in Clark County. The mill included kilns and machines for grinding calcined lime into cement. Sable and Gilmore closed the operation in 1866 (Baltz 1986:19). During the mid-1870s, the Black Diamond Mill manufactured cement in the Silver Creek area. The plant included six kilns and four buhr stones for grinding calcined limestone. The facility closed around 1900 (Baltz 1986:20).

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Among the leaders responsible for the rise of Utica's lime industry in the late 1860s was Moses H. Tyler, owner of M.H. Tyler & Company (Hockensmith 2009:57–58; Baird 1909:400; Kramer 2007:184). Significant to Tyler's operation was his pair of continuous-burning "patent kilns," capable of producing 200 barrels of quicklime per day. Achieving production rates previously unrealized by local lime manufacturers, Tyler became the first large-scale lime company in Utica. Built at a cost of \$10,000, the Utica Lime Company kilns employed between ten and twenty hands at a time (Baird 1909:400; Kramer 2007:184). Tyler eventually sold his businesses to James B. Speed's ever-growing Louisville Cement Company. (Clark County 1871:138). Despite the sale, Tyler remained employed at the facility for the next 25 years.

The Utica Lime Company was incorporated in 1868. Operations were carried out in Utica Township, with the main office located across the river in Louisville (Hockensmith 2009; Clark County 1868b:547). The company ceased operating in 1892, but was reincorporated in 1900 by the same shareholders. The reorganization appears to have been short lived, but

the company was again resurrected in 1921 (Hockensmith 2009:60–62).

Another notable lime producer at Utica was Prussian-born Henry C. Emmerke. By 1857, Emmerke and Mechac James were shipping lime to Louisville (Baird 1909:399; Kramer 2007:133). At the time of Emmerke's death in July 1899, his obituary in Jeffersonville's *Evening News* stated that he was known as "a pioneer lime burner of Utica," who "lived to see a small industry grow to large proportions and then gradually drop back to almost a standstill." The obituary noted that the lime business flourished prior to the advent of the cement mill, which antiquated the "old-fashioned kiln dug in the side of some steep bank along the river." Emmerke was reported to also have been engaged in the lime business across the river at Harrods Creek, Kentucky, where he ran a general store and saloon (*The Evening News* 1899).

Emmerke sold his company to the Louisville Cement Company in 1870 (Clark County 1868a:142). The company was already in possession of a pair of coal-fired kilns and pair of wood-fired kilns, giving the plant a combined capacity of 520 barrels per day. Incorporated in Louisville in 1869, the Louisville Cement Company was the latest manifestation of a business whose roots extended to 1830. The company exploited beds of natural cement stone discovered during construction of the Louisville & Portland Canal. The company's name was changed to the Louisville Cement & Waterpower Company in 1866 and the Louisville Cement Company in 1869 (Kramer 2007:185).

By the mid-1870s, James Breckenridge Speed had become the biggest name in the local lime industry. Born near Booneville, Missouri, on January 4, 1844, Speed went to work for the Louisville Hydraulic Cement & Water Power Company shortly after the Civil War (French 2001:842–843; Hockensmith 2009:54). At age 25, he assumed the general management position at the newly organized Louisville Cement Company.

Within a few years, Speed ascended to the role of company president. In 1871, he organized J.B. Speed & Company, which burned lime at Utica (Ault et al. 1974:31; Hockensmith 2009:54). Speed's lime operation at Utica was merely one component of a large-scale hydraulic cement operation that operated numerous plants located between Louisville and Crawford County, Indiana.

The main arm of Speed's business, the Louisville Cement Company, extended its reach into Clark County, Indiana, soon after incorporating at Louisville in 1869. That same year the company purchased the Sable and Gilmore mill and a large tract of land on Muddy Fork at Petersburg in Clark County. In 1871, the company incorporated in Clark County to engage in the "manufacture of lime & hydraulic cement commonly called Water Lime" (Clark County 1871:114). Although the company office was located in Louisville, its Clark County operations were directed from Jeffersonville (Hockensmith 2009:56). During this period, the company built a large cement processing plant at Petersburg. The facility employed about 60 hands and operated eight kilns with a combined capacity of 1,000 barrels of cement per day. Annual production was rated at 100,000 barrels. Located along the tracks of the Jeffersonville, Madison & Indianapolis Railroad, the plant was well situated for the exportation of cement (Kramer 2007:185).

Although the Louisville Cement Company was involved primarily with the manufacture of hydraulic cement, it also "took up the collateral line of the manufacture of lime, beginning in a small way at Utica" (Hockensmith 2009:56). Through J.B. Speed & Company, the enterprise operated a pair of coal-fired and a pair of wood-fired kilns with a combined capacity of 520 barrels per day. As of December 1881, the Louisville Cement Company's lime operation was valued at \$25,000 and employed about 35 hands (Baird 1909:400; Kramer 2007:184).

The Louisville Cement Company acquired a foothold at Utica through the purchase of the M.H. Tyler & Company and the H.C.

Emmerke & Company. An 1871 lease granted by Mitchell and Eliza Howes stated that the company could quarry "...all the rock from the face of the cliffs or ledges of rock as far back into the ledges or layers of limestone as said second party may choose to quarry" (Clark County 1871:135). The lease further stated that the company had the right to erect kilns and lay tracks between the quarry and the kilns for the purpose of moving limestone. The company agreed to pay the Howes semiannual royalties for the burned lime (Clark County 1871:136; Hockensmith 2009:65). The lease also noted that the Utica Lime Company had, through verbal agreement with Mitchell Howes, erected a frame warehouse near the property line for the Louisville Cement Company, and that the Louisville Cement Company should not interfere with it. The company continued to renew leases with the Howes and their heirs through the 1890s (Clark County 1871:136-137; Hockensmith 2009:65).

The Louisville Cement Company's activities, as well as those of the Utica Lime Company and other smaller producers, greatly contributed to the growth of the industry in post-Civil War era. As one journalist noted in June 1872,

"[t]he limeries are running at full force at this place now. The Louisville Cement Company is making three hundred and twenty barrels per day, and working twenty-six hands. The Utica Lime Company, Messrs Bellknap & Co., are also working a large force of hands" (*National Democrat* 1872a:5; Hockensmith 2009:947).

In August of that same year another article noted that "[t]he principal feature of this place [Utica] is the burning of lime just above the river bank. This gives work to a large number of the inhabitants" (*National Democrat* 1872b; Hockensmith 2009:47). In his 1874, Report of Geological Survey of Clark and Floyd Counties, Indiana, William W. Borden noted that:

J. Speed Esq. (Louisville Cement Co.), has erected at Utica two of Page's patent kilns, each producing one hundred and twenty barrels of lime per day. At Robinson's landing, a few

miles above Utica, Mr. Jacob Robinson burns of the same stone ten thousand barrels per year. The fuel employed is wood and requires four cords to burn one kiln. The Utica Lime Co., use a mixture of wood and coal, have two kilns, each producing ninety barrels of well burned lime per day. The Louisville Cement and Lime Co., and the Utica Lime Co., and Mr. J. Robinson burn one hundred and twenty five thousand barrels of lime per year employing in the business a large number of hands (Borden 1874:145).

Census data for Utica Township in 1870 and 1880 reveals the extent of the industry's expansion. A total of ten men were employed as lime burners in 1870, but by 1880 the number had climbed to at least forty-one. Sixteen quarry workers were employed in 1880 (United States Federal Census 1870, 1880). Clearly, the quarry and lime industries were interdependent, as the limeries required spalls from the quarry to make quicklime (Hockensmith 2009:77). Those listed as quarry workers likely were employed by the lime companies.

The industry continued to boom through the early 1880s, but in 1885 Speed's Louisville Cement Company relocated its main lime operations to Crawford County, Indiana, following the discovery of a high quality limestone near Milltown (Hockensmith 2009:56; Ault et al. 1974:26). Speed continued to burn lime at Utica, but the operation there appears to have dwindled. Concurrently, all lime operations at Utica declined. On March 31, 1892, *The Evening News* reported that "[t]he Utica Lime Company has shut down their kilns indefinitely" (*The Evening News* 1892; Hockensmith 2009:61).

As noted in Henry Emmerke's 1899 obituary, Emmerke had seen Utica's lime industry "grow to large proportions and then gradually drop back to almost a standstill" (*The Evening News* 1899). In 1903, W.S. Blatchley stated in his annual report to

the Indiana Department of Geology that for the past seven years annual lime production at Utica had totaled no more than 8,000 barrels per year. He stated that as of 1903, there was but one kiln under fire at Utica. Owned by J.B. Speed & Company, this structure was located "about a quarter of a mile northeast of Utica," and was processing "a very fine magnesium which burns into a lime of high repute for mortar and plaster." This product was marketed at Louisville and points along the Ohio River north of Utica. Following a complete conversion to Portland cement in 1906, Speed abandoned the Utica works entirely (Rooney and Carr 1971:19). Blatchley wrote that the Union Lime & Cement Company continued to burn lime near Utica until ca. 1900, when the company abandoned its works for lack of transportation facilities (Blatchley 1904:242).

Immediate access to cheap transportation was a chief determinate of the viability of large-scale commercial quicklime production, wherever it occurred. Utica's close proximity to the Ohio River clearly had much to do with the prosperity of its quicklime plants. However, the river that had proved a boon to Utica's lime industry became a limiting factor, as railroads came to dominate the transportation industry during the 1870s and 1880s. According to Blatchley, the lack of transportation facilities was the primary impediment to the industry at Utica, "where shipment is possible only by boat on the Ohio River" (Blatchley 1904:222). Given the extreme bulk of lime, in combination with its relatively low value per barrel, wagon shipments were cost-prohibitive. Limeries with ready access to rail transportation would have had a clear advantage over those located at isolated river landings.

Another factor reported to have played a role in the decline of Utica's lime industry was competition between independent lime manufacturers and their much larger, high-capacity counterparts (Baird 1909:401; Ault et al. 1974:31). It is possible that competition among smaller producers exacerbated this problem. The formation of the Utica Lime Manufacturing Company on

March 11, 1867, supports this theory. The organization was created to better regulate lime production, shipments, and sales. Founding members included Henry Emmerke, James Morrow, James A. Hobson, T.J. & George Brindle, W.L. Daily, N.R. Hogg & brother, and B.J. Hogg. The company's articles of incorporation indicate that there was a need to control production in order to avoid glutting the market at Louisville. With so many companies producing lime, prices were likely too low to make a significant profit. Given these conditions, the participating companies likely wanted to discourage additional lime burners from entering the market. How effective these articles were, or how long the organization existed, remains unclear, but under the conditions that must have prompted its formation, no individual company could hope to make a serious enterprise out of Utica lime. The next step in the industry's evolution was consolidation. The Louisville Cement Company was the one organization with enough capital to reduce or eliminate its competition. In 1871, former Utica Lime Manufacturing Company member Henry Emmerke sold out to the ever-growing cement conglomerate, as did Moses H. Tyler. Any remaining independent companies were left to compete with a well-financed corporation whose primary purpose was the large-scale production of natural and hydraulic cements.

The rise of natural and Portland cements proved perhaps even more detrimental to Utica's lime industry than the lack of good transportation. As Henry Emmerke's obituary noted, the lime business flourished prior to the advent of the cement mill, which antiquated the "old-fashioned kiln dug in the side of some steep bank along the river" (*The Evening News* 1899). While lime was a component to the Louisville Cement Company's operation, their main goal was the production of natural and hydraulic cement. The company operated large cement plants at Petersburg and later the company-founded community of Watson, located near the Mississippi & Ohio Railroad in Utica Township (Kramer 2007:185). Once a better, more accessible source of lime was located at Milltown in Crawford County,

the Utica operation became an ancillary operation. Those independent lime manufacturers surviving after 1885 were left to compete in a market with a modern cement manufacturer who could produce and ship a superior product at a lower cost.

Although Utica's lime industry nearly was finished by the late 1890s, numerous quarrymen and lime manufacturers initiated businesses at Utica well into the 1920s and 1930s. The first of these was the Union Lime & Cement Company, which reincorporated the defunct Utica Lime Company in 1900. Blatchley noted that the Utica Lime Company "uses a mixture of wood and coal, and has two kilns, each producing 90 barrels of well burned lime per day" (Blatchley 1904:222). This operation ceased production in 1904 (Hockensmith 2009:61).

The next company to incorporate was the Utica Stone, Lime, & Cement Supply Company. Formed in 1911, the Utica-based company's aim was to "manufacture lime and cement; to quarry and sell stone; to buy and sell lime, stone and cement" (Clark County 1911:441; Hockensmith 2009:57). A 1911 lease agreement with Mitchell Howes' daughter and heir Elizabeth P. Hyatt makes reference to the "appurtenances thereon belonging necessary to the manufacture of lime and the sale of lime and stone providing however said appurtenances shall be used exclusively for manufacturing of lime from rock obtained from said premises" (Clark County 1911:144-145; Hockensmith 2009:70). It further granted "the right to use the Ohio River banks fronting said lands . . . for the purpose of maintaining, tying, loading and unloading boats, barges or other water craft" (Clark County 1911:144; Hockensmith 2009:70). It is not known if this company ever burned lime at Utica, nor is it known how long the company remained in business. The company failed to file annual reports between 1935 and 1955, resulting in the termination of its corporate status (Hockensmith 2009:57).

In 1921, a third manifestation of the Utica Lime Company appeared on the scene. The company was incorporated

by Walter E. Hyatt, Benjamin L. Hyatt, and Mary Gertrude Hyatt. According to the articles of incorporation, the object of the company was to “burn and dry lime to sell at retail and wholesale” (Clark County 1921:107; Hockensmith 2009:71). In 1921, Elizabeth P. Hyatt conveyed 6.83 acres of land to the Utica Lime Company for “the purpose of burning lime and quarrying rock and erecting buildings needed for same only” (Clark County 1921:216–217; Hockensmith 2009:71). The lease further stated “that rock must be quarried and either burned into lime or sold by the cubic yard at least six months each and every year or this lease becomes null and void” (Clark County 1921:216–217; Hockensmith 2009:71). It is not clear if the company actually burned lime on the property, but Hyatt signed another lease with the Utica Lime Company in 1925. This lease described the property as “a certain quarry which is now being operated by Joseph Hall, the face of which is not to exceed three hundred fifty feet and the depth of which is not to exceed seven hundred feet (Clark County 1921:531; Hockensmith 2009:71). It states that the second party understood that it “agrees to use said party only for the purpose of quarrying rock and burning lime, and for such purposes to take from said real estate such rock as it may desire...” (Clark County 1921:531; Hockensmith 2009:71). It is not certain how long this operation remained active, nor is it known whether the company actually burned lime or simply sold crushed rock.

Elizabeth Hyatt signed a ten year lease agreement with Charles Long in 1926 for access to 37 acres of her land. The agreement stated that “[i]t is understood and said lessee hereby agrees to use said property for the purpose of quarrying rock and erecting lime kilns and tramways, railroad switches, ware-houses, machinery and for any other purpose necessary to the quarrying, crushing, burning or otherwise preparing rock or stone for the market” (Clark County 1926:54; Hockensmith 2009:70). The lease was assigned to the Utica Stone Company in 1927 (Clark County 1926:54; Hockensmith 2009:71).

In 1927, Hyatt signed a ten-year lease agreement with Fred Kilgus. The agreement essentially mirrored that signed by Charles Long, including 37 acres and providing for the “quarrying of rock and erecting of lime kilns and tramways, railroad switches, ware-houses, machinery and for any other purpose necessary to the quarrying, crushing, burning or otherwise preparing rock or stone for the market” (Clark County 1926:102; Hockensmith 2009:70). Given the identical parameters of the agreement, the Kilgus lease might have been associated with the Utica Lime Company operation.

The last available lease agreement for the former Mitchell Howes property dates from 1932. This was a 99-year lease agreement made between Louis Ewald and Elizabeth Hyatt’s heir, Gertrude Hyatt. The lease was for “quarrying stone there from and placing thereon such machinery, appliances, and appurtenances as may be necessary for the purpose of transporting said stone before or after the same is crushed” (Clark County 1932:133; Hockensmith 2009:72). This lease agreement makes no mention of lime, but appears focused on rock crushing.

The lack of additional lease agreements suggests that the lime industry at Utica was largely played out by the 1930s, if not earlier. Whether any of the later companies actually produced quicklime remains uncertain. As of 1909, when Baird wrote his *History of Clark County*, James Speed was the last to manufacture lime at Utica. This was further substantiated by Blatchley, who stated in 1903 that there was “but one kiln under fire at Utica,” owned by J.B. Speed & Company (Blatchley 1904:242). Population census records for 1900 reveal that at least eight men in Utica Township gave their occupation as lime burners, with an additional 19 men identifying themselves as “Stone quarryman” or “Stone Cutter” (United States Federal Census 1900; Hockensmith 2009:81–82). One of the eight men listed as a lime burner in 1900 was Napoleon Wood, who had improved the old pot kiln around 1850. It is not known if Wood gave his

occupation out of habit or if he was actually employed in the production of lime at that date.

Clearly, the quarries remained active at Utica, as evidenced by the number of quarrymen in the township. The number actually jumped to 27 in 1910, indicating that quarry activities at Utica remained significant. However, in 1910, for the first time since the 1850 census, no one identified themselves as a lime burner (United States Federal Census 1910; Hockensmith 2009:82–82). By 1930, the number of quarrymen in Utica Township had dwindled to seven. These men identified themselves as “Labor,” “Contractor,” “Engineer,” or “Crusher.” Again, no one identified as a lime burner (United States Federal Census 1930; Hockensmith 2009:82). Due to the poor quality of the 1920 census for Utica Township, it is not known how many men were listed as quarrymen or lime burners at that date.

The lack of lime burners in the post-1900 population census records remains consistent with Baird’s observations ca. 1909. However, it is possible that the Utica Stone, Lime, & Cement Supply Company, formed in 1911, manufactured lime. It also is possible that the Utica Lime Company of 1921 made lime. Given the predominance of Portland cement, however, any lime production at Utica after ca. 1910 probably was limited in scale.

As evidenced by the census records, much of the activity at Utica’s quarries appears to have been related to stone crushing. Lease agreements with Elizabeth Hyatt indicate that crushed stone was a component, if not the main objective, of these later companies. The option of burning lime may have been left open in the event that such a product became marketable. Regardless, the heyday of Utica lime clearly was over by 1907, and was probably in decline as early as 1885. The transition from lime to natural cement and Portland cement, in combination with poor transportation facilities, and stiff competition, proved fatal to Utica’s once-prominent industry. After ca. 1910, crushed stone and dimension stone appear to have replaced lime as the

primary focus at the Utica quarries. Four kilns and a series of extensive quarries now provide the only reminder of this once-significant enterprise.

2.3c Comparative Figures of Neighboring States

Pre-1900 production figures for Indiana’s lime industry are limited. Two estimates, however, suggest lime production was on the rise in the late 1870s and early 1880s. Roughly 20,000 tons of lime was manufactured in 1879, and approximately 30,000 tons was made in 1882 (Ault et. al 1974:34). How these figures compare to other states at that time is not clear, but Federal census records for 1889 indicate that of the forty states producing limestone, Indiana ranked third in overall extraction of the material, which included building stone. It also ranked third in the number of limestone quarries (172), outnumbered only by Pennsylvania and Ohio.

The 1889 census data indicates that the North Central region, defined as Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin, led the nation in the production of limestone. The limestone output for this region was valued at more than \$10 million, nearly \$4 million more than the next largest producing region, the North Atlantic (Day 1890:631). Indiana accounted for 18 percent (nearly \$2 million) of the region’s output. However, while the state was the nation’s third largest producer of limestone, it ranked seventh in the production of quicklime, producing 1,074,517 barrels in 1889. These numbers suggest that Indiana’s limestone industry focused on the production of dimension stone for architectural use. This concentration is scarcely surprising, given the history of the Salem dimension stone belt in Monroe and Lawrence Counties, the source for a significant portion of the nation’s building stone (Day 1890:632).

Pennsylvania remained the largest quicklime manufacturer in the country until 1922. Since that date, Ohio has reigned as

the largest producer of lime. From the 1920s to at least the 1970s, Pennsylvania and Missouri alternated between second and third place for quicklime production. Until 1942, Michigan and Indiana produced roughly the same amount of lime. Indiana ranked as high as ninth as late as 1920 but slowly declined thereafter. As a result of the increased demand for steel, Michigan's lime industry continued to grow during and after World War II. The state remained in fifth place for lime production as late as 1970. Illinois also remained one of the country's top lime producers in the post-war years, supplying the material to its own steel industry. Wisconsin's lime industry continued to grow after World War II, making it one of the top producing states in the country (Ault et al. 1974:33-34).

2.3d Decline of the Indiana Lime Industry

The number of Indiana quicklime manufacturers processing Indiana limestone decreased after 1900, but production of lime briefly increased as companies consolidated and increased efficiency with high capacity plants. As with many American industries, however, lime production came to a near standstill during the Great Depression and World War II. Between 1930 and 1943, five of the state's six remaining lime producers stopped making quicklime. It appears that these manufacturers preferred to focus their energy solely on making crushed limestone rather than modernize their kilns to make quicklime production more profitable (Ault et al. 1974:36).

The general indifference toward lime production was likely a result of decreased demand for building lime. Lime, however, remained a useful commodity for a variety of applications, including steel and chemical manufacturing. Indeed, demand for industrial and chemical lime increased from approximately three million tons in 1950 to nearly seventeen million tons by 1970 (Ault et al. 1974:4). In the post-war years, lime manufacturers in Ohio continued to supply markets easily accessible via Lake Erie. And in markets that historically purchased Indiana quicklime, such as Illinois, Pennsylvania, Michigan, and Kentucky, new

manufacturers arose to meet local demand. After World War II, it became standard practice to build lime processing plants just outside the limits of major cities. These plants negated the need to import lime from outside sources. Nevertheless, a number of large markets remained available to Indiana lime producers after the war. The state's manufacturers, however, failed to capture these opportunities (Ault et al. 1974:38).

No single explanation can account for the end of Indiana's lime industry. Certainly, declining demand for building lime, high overhead, and competition from manufacturers in neighboring states played large roles in the industry's demise. Nevertheless, with an abundance of high-calcium limestones available within the state, and readily available markets in Kentucky, Illinois, and Michigan, Indiana lime plants could have continued processing native stone had they been motivated to do so. Ultimately, the leading cause of the industry's extinction might have been nothing more than a pervasive lack of enthusiasm for lime production. As one lime expert put it, Indiana lime production ended largely as a result of "apathy, and un aggressiveness undoubtedly stimulated by the decline of building lime" (Ault et al. 1974:40).

Quarries

The quarries of Utica are located along the western side of Upper River Road from the north end of the village of Utica to approximately 1 mile north of Utica. These mines were excavated from the bluffs that parallel the Ohio River, serving the lime kilns and possibly also providing dimensional building stone. The quarries were conveniently located adjacent to the river, where workers could easily load barrels of limestone aboard river boats and barges. Limestone mining occurred at these quarries from as early as 1818 to as late as the 1930s. However, the quarries were associated with lime burning from about 1818 to perhaps no later than 1907, although it is possible that lime burning occurred here on a limited basis into the 1920s.

Although quicklime quarries do not follow any specific plan or embody characteristics specific to the lime burning industry, they do provide evidence of mining techniques. Drill holes in the quarry face illustrate the results of the drilling and blasting process, and the general shape of the quarry reveals how lime-burning operations utilized existing lime resources. The outline of a quarry also indicates where workers concentrated their efforts, as well as where they entered and exited the excavation site. These clues help provide information as to how local lime-burning operations developed existing deposits.

Any equipment used in the quarry, such as drilling machinery, excavators, or tramways typically were removed from the site at the time of abandonment. The quarry itself, therefore, often provides the only evidence of a mining operation. The precarious nature of quarries, their tendency to flood, and the impracticality of building on the bedrock of a quarry bench, often precludes any type of residential or commercial development within the quarry itself. Changes to the interiors of quarries generally involve the accumulation of rain and ground water, assorted refuse, and vegetation that might find a foothold on the quarry bench. Surrounding development, however, can drastically alter the overall setting within which a quarry exists. Residential and

commercial development can obliterate original transportation routes between the quarry and outlying machinery or ancillary structures, as well as alter the surrounding setting.

Archaeological Properties

Archaeological properties associated with the lime-manufacturing industry of Utica Township may include any of the properties defined above (i.e., quarries, kilns, etc.), regardless of whether they possess sufficient integrity to convey their historical significance as a physical example of their property type. Furthermore, archaeological properties may include other physical remnants of activities associated with lime-manufacturing, including but not limited to: artifacts, quarry material, ruins, foundations and foundation remnants, builders' trenches, spoil heaps, push piles, road beds, rail spurs, and barge moorings. These properties may be above ground, or wholly or partially below ground. The potential archaeological properties listed above may no longer be extant as recognizable buildings, structures, and objects, but their archaeological remains can provide important information regarding how the industry functioned; how lime was moved, stored, and manipulated within the landscape; and the human behaviors associated with these activities that cannot be learned through historical research or from studying the extant built environment.

CHAPTER THREE

Inventory and Analysis

3

Land Use and Zoning Issues

EXISTING CONDITIONS

Introduction

In order to make appropriate and relevant recommendations for the stabilization and preservation of the four surviving lime kilns, one must understand the existing conditions of the area. This chapter includes an inventory of surrounding land uses, circulation patterns, and other relevant topics that could affect or influence the long-term function and viability of the lime kiln properties. An assessment of the physical condition of the four lime kilns is also included. The conclusion of this chapter includes a summary of the issues affecting the lime kilns.

3.1 LAND USE CONSIDERATIONS

The following land use analysis examines general development patterns within this area of Clark County, and specifically growth surrounding the Town of Utica. For the most part, development in this part of Clark County has occurred as a result of the City of Jeffersonville's industrial growth south(west) of Utica. Although growth in nearby Jeffersonville has spread to the outskirts of Utica, the town itself has changed very little since the devastating flood of 1997. Since that time, there has been some residential development along the banks of the Ohio River.

As the accompanying photos illustrate, much of the county land adjacent to the Town of Utica is comprised primarily of wooded areas and agricultural land. A limited number of roads and the rocky bluffs typically found along the Ohio River valley have combined to limit growth around Utica. The aerial on the following page reveals general patterns of development in the Jeffersonville and Utica area. In general, suburban residential development radiates north and east from Jeffersonville and transitions to a more rural setting around the Town of Utica. Notable land use features around Utica include:

- Heavy industrial uses (land-intensive) along Port Road
- Mix of agricultural land and developed parcels along the Port Road corridor
- Primarily agricultural land and riparian corridors / woodlands west of Utica



Woodlands surrounding the lime kilns



Agricultural land and woodlands near Ohio River / Town of Utica



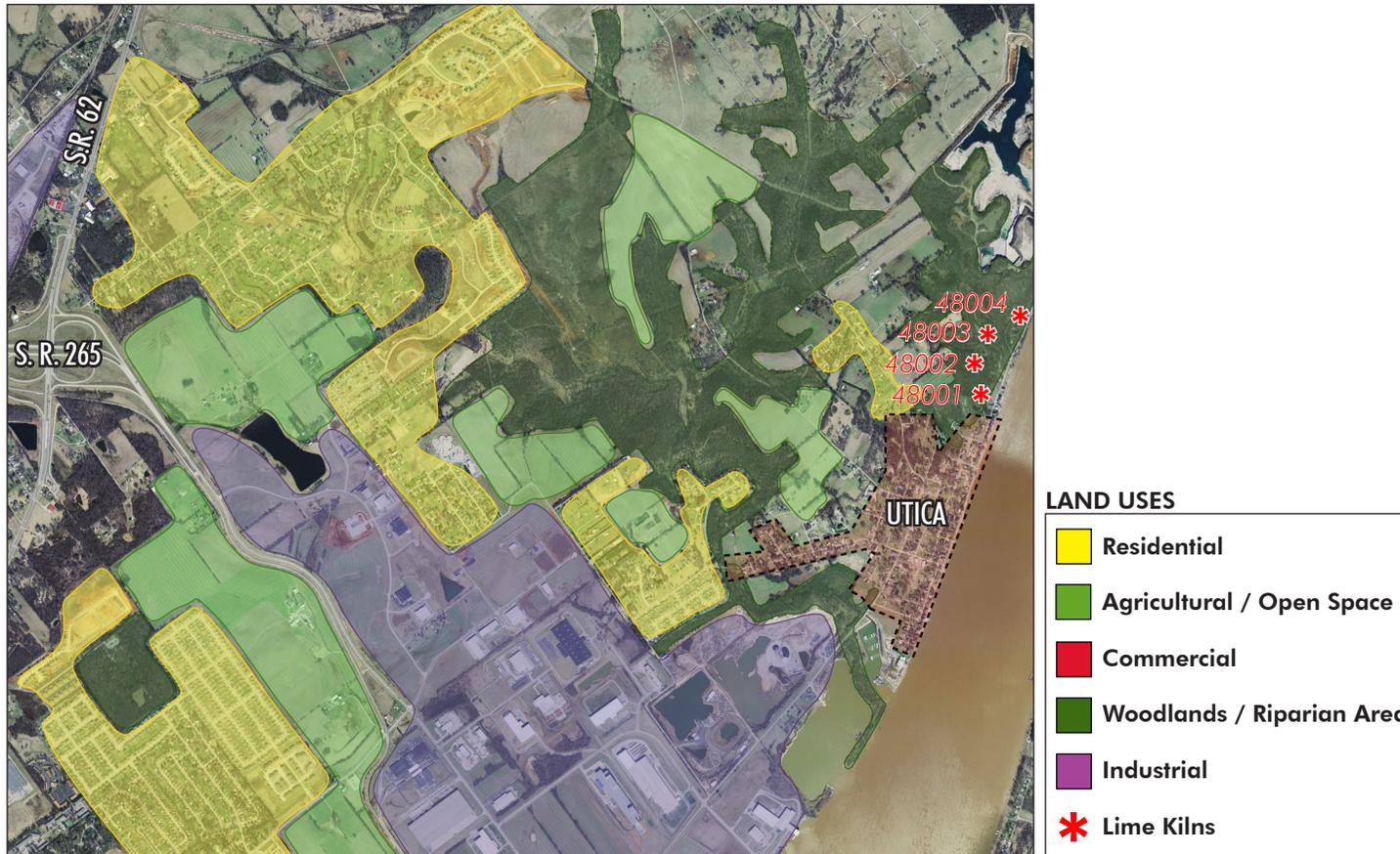
Residential development at Quarry Bluff Subdivision

- Development within the historic urban grid of Utica
- The Quarry Bluff Subdivision - approximately 200-unit residential development upriver from Utica
- Historic open space, including Utica’s Hillcrest Cemetery (established 1808)

3.2 PLANNING AND ZONING ISSUES

Introduction

Existing planning and zoning regulations are administered through the Town of Utica. The map on this page shows the zoning districts that currently exist around the lime kiln and quarry properties.



Land uses surrounding the Town of Utica

3

Natural Features

EXISTING CONDITIONS

Introduction

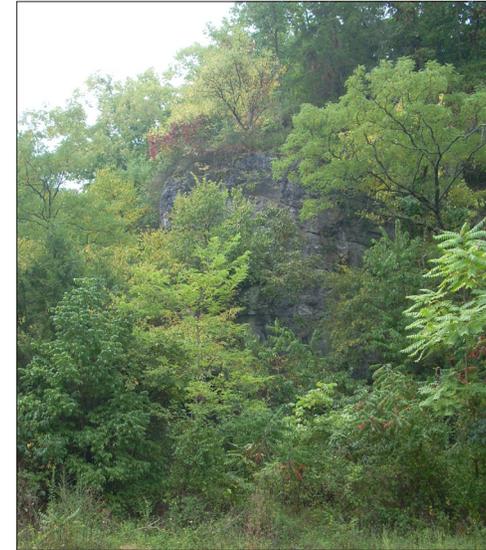
Natural features surrounding Utica and the kilns have played a significant role in shaping development patterns and the identity of the area over the years. The Ohio River valley, wooded hillsides, and limestone outcroppings have not only provided scenic beauty, but also economic development opportunities over the years. It is important these environmental systems are recognized, preserved, and even highlighted as an integral part of the design process for the East End Crossing corridor. Identifying, and ultimately protecting the natural integrity of the area will ensure adequate wildlife habitat is maintained, the functional aspects of the Ohio River riparian corridor are retained, and impacts to the scenic beauty of this rural setting is minimized. The following section provides an overview of the natural context encompassing the lime kilns.

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3.3 NATURAL FEATURES

Areas outside of Utica remain relatively unchanged over the past several years. Other than the abandoned quarry upriver of the town that is now being transformed into a unique residential subdivision, much of the area remains wooded or is in agricultural production. Topography on the site is largely disturbed from the natural Ohio River floodplain, and early limestone mining and grading related to the use of the kilns.

Limestone bluffs on the site are remnants of previous mining efforts. It is likely that additional filling of the natural floodplain has occurred in the area. Vegetation throughout the site is secondary growth dating to the early twentieth century or later, as the entire site was cleared to accommodate the lime industry operations. The vegetation consists of deciduous trees and shrubs common to the lowland Ohio River valley including walnut and maple with both native and non-native understory vegetation. Centered between kilns 48002 and 48003 is a small creek that traverses the site and drains to the Ohio River.



Bluff of former limestone quarry west of Kiln 48002



Construction / access road near Kiln 48003



Aerial view of wooded area and abandoned quarry (Quarry Bluff Subdivision)



Limestone outcroppings typically found along the Ohio River Valley



Area near Kiln 48003 used as an illegal dumping ground



Typical undergrowth along wooded area leading to creek

This section provides a brief overview of the current conditions of the four lime kilns. The following observations are based on visual inspections of the kilns in 2008, 2009, 2010, and 2012, as well as archival and archaeological research conducted in early 2009. Structural analyses were not conducted for any of the kilns. As will be discussed in **Chapter 4**, one of the MOA Stipulations addresses the need to do a more thorough “conditions assessment” report prior to any Project construction.

The following information is based on research of not only the four kilns, but also the secondary, or ancillary features around the kilns. It is important to understand the kilns themselves were often part of larger industrial operations. This could include the quarrying and handling the raw material, disposing of waste or “cast-off” material, and providing a means to ship the finished material to markets - typically by way of the Ohio River. Unless noted otherwise, the following lime kiln photos were taken during a number of site investigations in 2008, 2009, 2010, and 2012.

Because most of the kilns and quarries in Utica lack specific, historical names, they have been assigned identification numbers to help distinguish one from the other. The four extant kilns in Utica are numbered 48001 through 48004, beginning with Kiln 48001 and its quarry located at the southern end of the former lime-manufacturing area.

3.4 KILN 48001 FEATURES

Kiln 48001 (archeological site number: 12-CL-551) and its associated quarry are located near the northern edge of the Town of Utica, approximately 82 yards west of Upper River Road. The kiln is an intermittent or periodic type of groundhog kiln built ca. 1850 on land owned by Mitchell P. Howes (Hockensmith 2009:88–89). It is built into the base of a steep slope of an upland ridge, facilitating the loading or charging of the kiln from the top. The arched draw-off, which was used to extract burned lime from the kiln, faces the river. The relatively small draw-off of the kiln suggests that it likely dates to the 1840s or

1850s, when kilns of this size dominated the industry. The kiln opens onto a plot of level ground that has been cleared for residential development, one of a series of recently-leveled lots that extend northward along the west side of Upper River Road for approximately 164 yards. An abandoned teardrop-shaped quarry is located west of the kiln. The quarry measures roughly 137 yards long, from east to west, and roughly 55 yards wide, from north to south.

Although it has become overgrown with vegetation and has been neglected over time, the kiln remains in good condition. It is the smallest of the four kilns. Because the kiln is set back from the road, the biggest threat facing the structure is from development. Although currently undeveloped, the layout of residential lots between the kiln and Upper River Road would cut the kiln off from public access, concealing it in a private back yard.

3.4a Kiln 48001 Conditions

The surviving portion of the front facade is a limestone wall is approximately 17'-6" long and 6'-3" high. The western side of the kiln has been impacted by modern activities that appear to



Contextual setting of Kiln 48001

have altered the topography. The top of the kiln consists of a mound of debris covered with dense vegetation including thick vines.

The front facade of the kiln contains a limestone wall with an arch located near the center. At least ten horizontal courses of limestone slabs are visible in the wall. The arched opening is approximately 4'-9" high and 9'-0" wide in the front. The arch stones above the opening form an irregular band between 15" - 18" in height. The arch is constructed from thirteen carefully-shaped limestone slabs. The width of the stones tapers with the widest portion on the outside edge of the arch while slightly tapering on the inner edge. The arch stones are about 35-1/2" long and form the curved ceiling in the front of the arch. These shaped stones are about 15" - 18" wide. The arch stones are the only carefully shaped stones used in the kiln. The rear portion of the arch is constructed from small undressed slabs of limestone. While the front section of the arch has a curved ceiling, the rear section does not have a curve. This section has vertical side walls and a horizontal ceiling. A single course of limestone is partially exposed below the arch on each side. The

wall on the south side of the arch has been demolished, as has the upper portion of the kiln above the arch ring. It appears that about 3'-0" to 5'-0" of fill is present within the arch and that the whole area in front of the kiln has been filled to provide additional protection against flooding. The floor of the arch contains common soft-mud bricks and recent trash. A linear earthen wall is present along the west edge of the kiln and curves around to the front of the kiln.

The top of the kiln, as it presently exists, is covered with a mound of debris that is in turn covered with a dense layer of vegetation. The remaining portions of the west, north, and south façades extend only to about the height of the arch. The exterior of these façades are largely obscured by earth and vegetation.

3.4b Kiln 48001 Associated Features

A substantial quarry is located to the west of the kiln. The quarry bench is just above the kiln. Preliminary field investigations/measurements indicate the quarry wall is roughly 13'-9" to 15'-9" high. It is not known whether the quarry produced limestone for only the lime kiln, or if building stone was quarried as well.



Groundhog Kiln 48001



Groundhog Kiln 48001



Perpetual Kiln 48002



Damage to stone wall

3.5 KILN 48002 FEATURES

Lime kiln 48002, similar to kiln 48003, is a large double perpetual kiln located several hundred yards from Upper River Road. Lease records indicate that Moses H. Tyler & Company might have built this kiln. The exact date of construction remains unknown, but in 1868, Tyler signed a lease with Mitchell P. Howes, former owner of the property upon which Kiln and Quarry 48002 are located. The lease stated that Tyler had the right to erect as many patent kilns as needed for his lime operation. Three years later, Tyler sold his operation to James B. Speed's Louisville Cement Company. The sale included Tyler's continuous-burning patent kilns (Hockensmith 2009:60,126). The mention of extant patent kilns indicates that Tyler erected the structures sometime between July 31, 1868, when he signed the lease with Howes, and April 24, 1871, when Tyler sold his company to James B. Speed. Quite possibly, the lease was referring to extant kilns 48002 and 48003. If so, a construction date of late 1868 or 1869 appears probable.

The surrounding site contains a number of artifacts in the form of stone foundations that provide clues to other activities associated with the lime industry operations. There has been significant damage to the southern-most corner of the wall face, compromising its structural integrity. In addition, the shaft openings at the top of the kiln have been filled in over time with debris and soil.

3.5a Kiln 48002 Conditions

This double lime kiln is constructed from large quarried slabs of limestone. The front facade of the kiln is approximately 34'-6" across and has a maximum height of nearly 25'-0". The kiln extends just over 42'-0" from the front to the rear corner. The rear wall of the kiln is not visible. Approximately nineteen courses of stone are visible on the front facade. The only variation in the construction of the kiln is that the stone slabs appear to decrease in size near the top of the structure. Two arches are present at the base of the kiln and appear to have been repaired



Brick repairs at arch

over time. A crack between 2" and 4" wide is visible in the wall above the northern arch. Just south of the southern arch, the corner of the kiln has shifted leaving a huge crack estimated to range between 6" and 18" in width. Apparently, the foundation of this kiln was not adequate to support the great weight of the walls over time. The northwest corner failed at one time and repairs were made by pouring a concrete wall reinforced with steel. Further, a concrete retaining wall is located at the base of the kiln to prevent the side slope from eroding onto the bench. The exterior facade of this arch was constructed from thirteen limestone blocks of various sizes. Later repairs were made from common red bricks and coated with mortar. The brick patches document repairs to areas of the old stone walls damaged by repeated firings.

The top of the kiln contains two openings where the kiln was loaded. Dense vegetation including trees, vines, and shrubs cover the top of the kiln. The openings vary in diameter between 10'-0" and 12'-0". The openings are largely filled with soil. Their interior surfaces are heavily glazed from the firing of the kiln. The interior contains several fire bricks that have fallen in from the collapsed walls. The northern opening is almost completely filled in and only a shallow depression (14" to 16" deep) remains visible.



Quarry bluff behind Kiln 48002



Typical moss growth at limestone shelf between quarry bluff and Kiln 48002

Lime Kiln Features

EXISTING CONDITIONS

3.5b Kiln 48002 Associated Features

At the base or front of the kiln is a relatively large level area or bench, that was used as a work area for extracting lime from the arched openings. The bench varies in width, tapering to the east and eventually narrowing into a road that curves around toward Upper River Road. The bench appears to be largely comprised of lime, ashes, burned limestone, coal cinders, and some brick fragments dumped from the kilns. Eighteen foundations were documented along the bench.

A substantial linear quarry is located about 28 yards behind (west of) the kiln. The quarry face extends another 27 to 30 yards further west. A wide roadway extends from the quarry



Ancillary stone foundations

floor to the top of the kiln. Measurements for the quarry wall range from 9'-9" to just over 45'-0" high. It is not known whether the quarry produced limestone for only the lime kiln or building stone was quarried as well. The quarry is very extensive and may have been used by different lime makers at various times for lime production. The quarry floor is now mostly covered by moss, small trees, and shrubs. The quarry walls create a precipitous drop from the top of the bluff above.

Two roads are present on the site. One follows the bench below the kiln to the open area adjacent to Upper River Road. The other road follows the hillside from the quarry down to Upper River Road.

3.6 KILN 48003 FEATURES

Kiln 48003 is the best-preserved and arguably the most impressive of the four kilns studied in this HPP. Lime kiln 48003 is a large double kiln located on the north side of a small valley that is drained by a stream that flows into the nearby Ohio River. The bench in front of the kiln contains several areas comprised of lime, ashes, burned limestone, coal cinders, and some brick fragments that were dumped from the kiln.

Lease records indicate that Moses H. Tyler & Company might have built this kiln. The exact date of construction remains unknown, but in 1868, Tyler signed a lease with Mitchell P. Howes, then owner of the property. The lease stated that Tyler had the right to erect as many patent kilns as needed for his lime operation. Three years later, Tyler sold his operation to James B. Speed's Louisville Cement Company. The sale included Tyler's continuous-burning patent kilns (Hockensmith 2009:60,126). The mention of extant patent kilns indicates that Tyler erected the structures sometime between July 31, 1868, when he signed the lease with Howes, and April 24, 1871, when Tyler sold his company to James B. Speed. Quite possibly, the lease was



Kiln 48003

referring to extant Kilns 48002 and 48003. If so, a construction date of late 1868 or 1869 appears probable.

It remains uncertain if this kiln was built according to a patented design. James Speed reportedly erected at least two of "Page's" patented kilns at Utica, but a review of existing plans for the various Page patents revealed that neither kiln 48002 or 48003 follow any of the Page designs. Kiln 48003 may simply follow a design that was common to the region, as it appears similar to draw kilns found throughout Ohio.

3.6a Kiln 48003 Conditions

This double lime kiln is constructed from huge slabs of quarried limestone. It is built into the side of a steep slope below a quarry bench. The front facade of the kiln is about 44'-2" across (east-west) and has a maximum height of about 37'-9". The maximum north-south dimension is about 42'-0". The rear wall of the kiln is not visible. Only the front and side walls are clearly visible. About 20 courses of a light gray limestone are visible on the front facade of the kiln. Additional courses may exist below grade. Immediately above these light gray courses of stone are at least



Perpetual Kiln 48003 arched openings



Original shaft opening at Kiln 48003



Recent earthwork and clearing around original shaft openings

six additional courses of a contrasting dark gray limestone. Another six courses of small, loose limestone slabs are located around the perimeter of the top of the kiln. This short extension of stone slabs may have served as a parapet around the edge of the kiln, providing a minimal level of safety. A series of three small segments of railroad rails project at even intervals from the facade near the top of the kiln. The rails probably served as supports or anchors for an awning across the front of the kiln. Some displacement has occurred at the southwest corner of the kiln, as evidenced by widened gaps between stones at this area.

Two draw-off arches are present at the base of the kiln and are about 11'-11" apart. Both arches are brick lined. Both sides of the kiln have steep slopes extending from the top rear to the front base, covering the basal corners of the kilns. Relatively flat terrain is located in front (south) of the kiln, creating a work area for extracting lime from the arched openings.

The top of the kiln contains two silo-shaped openings approximately 9'-0" apart where the limestone and fuel were loaded into the kiln. Dense vegetation including trees, vines, and shrubs covered the top of the kiln until it was cleared sometime between June 2010 and March 2012. This clearing exposed the top of the kiln, including the two shaft openings, and removed overgrowth along the slopes at either side of the kiln. The eastern opening measures roughly 8'-6" in diameter. The brick walls of the silo-like opening are heavily glazed from burning lime. It has been partially filled in with asphalt shingles, tires, rubber holes, and an assortment of debris. The current depth is approximately 14'-0". The western opening measures roughly 9'-10" in diameter. The brick walls of the opening are heavily glazed from burning lime. This silo has also been filled with debris over time and currently measures approximately 10'-10" deep. The rear of the kiln top is at the quarry bench level. A section of ramp is visible on the northeast corner that is about 21'-4" in length. On the northwest corner there is a

section of stone wall that slants outward 4'-6" that may also have been associated with the ramp.

3.6b Kiln 48003 Associated Features

To the west of the kiln in the forest is a linear dump area. An extensive quarry is immediately behind the kiln to the north. An existing residential road east of the kiln extending from Upper River Road to a modern home reportedly follows the old kiln and quarry road corridor. A second road is located immediately down slope from the first road and is in the forest. Also, a modern road follows the quarry bench and may have been enhanced in connection with the platted Lime Kiln Ridge housing development. Most of the dump piles had been impacted to some extent due to the removal of vegetation by the land owner with a backhoe. While the disturbances made them very visible, it altered their heights and may have slightly distorted their dimensions as materials were scattered.

A substantial quarry is located northwest of the kiln. The quarry bench is immediately adjacent to the kiln. Site investigations indicate the quarry wall varies in height from 10'-0" to 22'-6". Piles of spoil dirt and rock are located along the southern edge of the quarry bench. The old quarry bench near the kiln contains dense concentrations of coal. These may be remnants of coal piles associated with the last years of firing the kiln. Currently, there is no opening from this quarry to the kiln. Although the quarry is in close proximity to the kiln, it may represent an earlier operation. It is not known whether the quarry produced limestone only for the lime kiln or if building stone was quarried as well.

3.7 KILN 48004 FEATURES

Of the four kilns studied in this HPP, kiln 48004 has been the most compromised over time and is threatened with further damage. As the associated photos indicate, this groundhog kiln is directly adjacent to, and within the public right-of-way of, Upper River Road northeast of Utica. In fact, this damage was exacerbated when the road was rebuilt and raised approximately 6'-0" above its original elevation. This construction project also necessitated part of the stone foundation to be sheared away to accommodate the new road.

Circumstantial evidence suggests that this kiln was built by Samuel Starkweather ca. 1826 and abandoned about 1847 (Baird 1909:399; Degavre 1931:20; Hockensmith 2009:127). This single chamber groundhog kiln sits in the base of a bluff, which likely served as the quarry for this operation. Early kilns such as this operated intermittently, meaning that each batch of lime required a charge of fuel, followed by a burn and cool-down phase, then the removal of the calcined lime. Upon removal of the lime, the process started anew. Using this method, it might take several days to produce one batch of lime. Although

more efficient than the log-heap method, intermittent groundhog kilns were less efficient than their continuous-burning successors, which dominated the lime industry in the years following the Civil War. All that survives of Starkweather's kiln is part of the lower portion of the structure, which includes the arched opening for the draw-off. Lime makers used this opening to remove calcined lime and spent fuel. The upper portion of the kiln, which would have extended for an unknown height above the arch, has long since collapsed.

The most prominent feature of this structure is the large pointed arch that comprises much of the remaining section of the front (east) façade. The overall arch is built into a notch excavated from a limestone shelf at the base of a bluff. Curiously, the builders did not place the arch directly in the center of the notch but located it just to the left of center. Consequently, the overall front façade appears asymmetrical. This odd effect, however, could be the result of missing stonework. With so much of the structure missing it is difficult to know for certain what the exterior of the kiln may have looked like when intact. The limestone blocks on the north half of the arch are relatively regular in



Groundhog Kiln 48004





Condition of Kiln prior to roadway construction (photo ca. 1995)



Current view showing extent to which the facade has been buried

dimensions, while those on the south side are of irregular dimensions or have possibly fragmented over time.

3.7a Kiln 48004 Conditions

Lime kiln 48004 is built into the base of a bluff adjacent to Upper River Road. This primitive intermittent kiln was constructed from various sizes of limestone slabs. At least twenty-one courses of stone are visible in the wall. The lower side of the kiln is only 4'-0" from the edge of the pavement of Upper River Road. A low cliff is on either side of the kiln. It is approximately 10'-8" long on the south side of the kiln and 5'-5" on the north side. Drill holes in the rock face indicate the original cliff face was blasted off during the road widening project.

The most prominent feature of the kiln is the front facade. The front of the kiln measures nearly 22'-0" along the north-south axis. This wall is about 12'-2" high in the center, and nearly 11'-2" at the corners. The only opening in the facade is a large pointed arch. The facade of the kiln has been partially buried by the elevation of Upper River Road.

The top of the kiln is completely open. The front wall is straight while the remainder of the kiln appears oval in form. The east (front wall) and portions of the north and south walls are visible from the interior. The center and upper portions of the east wall are visible. The north wall has intact segments that are 8'-2" to 9'-6" high. The south wall is mainly covered with dirt and the exposed upper portions are 4'-2" to 8'-4" high.

3.7b Kiln 48004 Associated Features

A crescent-shaped quarry is located in the side of the bluff 55 yards west of the kiln. The east end is 41.5 yards long, and 7.5 to 14 yards wide. The 24'-6"-tall quarry then curves to the west for 75 yards with a maximum width of 39 yards. It is not known whether the quarry produced limestone for only the lime kiln or for other purposes as well. Another linear quarry was

located about 38 yards north of this quarry. Using little more than gravity and some type of chute system, workers could have pried stone loose from the bluff and moved it downhill to the kiln. Drill holes are located in the face of the bluff just west of the kiln (Hockensmith 2009:113). Early accounts of limestone mining at Utica indicate that local lime makers acquired lime by removing stone from the bluffs along the river (Baird 1909:399). This possible quarry is overgrown with trees and brush, making it difficult to discern the workings. Given the relatively short distance between the face of the bluff and the kiln, this would have been a small operation compared to later works.



Detail of stone arch



Detail of stone arch

3

Summary of Existing Conditions and Trends

EXISTING CONDITIONS

Introduction

Over the years, time and lack of maintenance have contributed to some deterioration of the lime kilns. However, the future of the kilns is in doubt due to residential development pressures and the long term, secondary impacts of the Bridges Project. The construction of the East End Crossing and new Salem Road interchange will increase traffic in the area and possibly bring added development pressures to Utica Township. Improved access to this part of Clark County will only bring added pressure to the area, and threaten the integrity of the kilns and their surrounding context.

3.8 STATUS OF THE KILNS

It is important for the Town of Utica to recognize the significance of these historic resources and seek innovative ways to preserve them for future generations. The remaining lime kilns are the only physical connections representing the now-defunct lime industry and its influence on the development of Utica. Recent encroachment of residential development along the river threatens to not only compromise the physical integrity of the kilns themselves, but also destroy the original integrity of the surrounding context. It is anticipated that additional research may reveal the extent of the lime industry operations and potential secondary/ancillary activities surrounding the four kilns. Such information could be used to not only strengthen

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Relationship of the four kilns to the proposed East End Crossing

the historic context of the kilns themselves, but also provide a greater understanding of how the industry influenced the Clark County landscape. The Bridges Project represents an opportunity to not only explore methods to preserve the kilns, but also details recommendations to incorporate them in a relevant way as part of any future development.

3.8a Historic Significance of the Kilns

A great deal of research has been conducted on the lime industry and these four kilns in particular as part of this preservation planning effort. This research indicates that, collectively, the kilns were constructed in the early- to mid-nineteenth century. Specific to kilns 48002 and 48003, deed research indicates the Utica Lime Company signed a lease for the associated property in June 1868. As such, according to professional archeological opinion, it can be assumed the kilns had been constructed and were operational by 1870.

The year 1870 is significant in relation to Indiana’s archeological law (IC-14-21) pertaining to private landowners. The law requires that any archaeological artifacts, features, or human remains pre-dating 1870 discovered during ground-disturbing activities must be reported to the Indiana SHPO. In 2009, the Indiana Division of Historic Preservation and Archaeology (DHPA) provided notice to the property owner that the disturbance of the site for development would likely uncover undisturbed pre-1870 archaeological artifacts or deposits. The DHPA noted that development on the site disturbing any pre-1870 artifacts or removing the kilns would require the submission of an archaeological plan to the DHPA. This would be followed by an archaeological investigation to document the kilns, artifacts, and deposits on the site according to the plan. The DHPA highlighted the significance of the kilns and encouraged their preservation and incorporation into any future development of the site.

3.8b Future Outlook for the Kilns

As noted in the introduction, improved access by way of the Bridges Project could bring added pressure to the Utica area and threaten the integrity of the kilns. The remainder of this HPP outlines a number of opportunities to protect the kilns, and explores a variety of ways to maintain the integrity of their surrounding context. **Chapter 4** addresses the eight Project MOA Stipulations pertaining to the four lime kilns. Based on future discussions between Project designers and the IHPAT, these are mitigation measures that will be funded and implemented as part of the Bridges Project.

The premise of **Chapter 5** acknowledges current development pressures facing this area of Utica. Specifically, it explores recommendations to successfully integrate the kilns into the proposed “*Lime Kilns Subdivision*”. Although these recommendations fall outside the scope and funding of the Bridges Project, they should be taken under advisement by the Project Design Team, Project management, as well as the developers considering the residential development. It is critical any re-use of the property retains the integrity of the rural landscape and responds to the what was once an important industrial setting for the Town of Utica. This chapter also lists a number of case studies where lime kilns have been incorporated into a public setting.

The **Appendix** outlines relevant implementation measures and potential stakeholders who could initiate, or champion, the long term preservation and viability of the kilns. Included in this is a summary of national, regional, and/or local organizations whose mission is to preserve sites such as the lime kilns. This section also contains a list of references used to develop the Utica Township Lime Kilns HPP - specifically the Historic Context.

C H A P T E R F O U R
Bridges Project Stipulations

Introduction

As the illustration on the following page indicates, the East End Crossing will traverse a range of land uses and natural features between S.R. 62 and the Ohio River. As such, the East End Crossing corridor will also create development pressure in this relatively isolated portion of the county. Local planning agencies and public officials should proactively address ways to direct growth in a positive manner that is best for Utica Township and Clark County. The list below highlights some of the primary issues regarding the East End Crossing's impacts on the existing landscape.

- Consider the direct and indirect impacts on the Town of Utica
- Proactively plan for new development at the Salem Road interchange
- Minimize impacts on the natural riparian corridors as a result of East End Crossing and/or any future development
- Consider a variety of farmland preservation measures to retain viable agricultural land
- Consider the use of an Overlay District to guide the type of development and/or use of signage along critical viewsheds of the S.R. 265 extension

4.1 EAST END CROSSING CORRIDOR STIPULATIONS

Minimizing the physical and visual impact of the interstate on the rural landscape is a major component of mitigating the potential effects of the East End Crossing corridor. As such, an overarching goal of the Project is to assimilate the East End Crossing into the locale to the greatest extent feasible. This concept, referred to as **Context Sensitive Design**, strives to integrate the new East End Crossing into the natural landscape. As noted in **Stipulation II.C** of the First Amended MOA:

"The roadways, bridges, and other Project elements where applicable shall be designed and constructed with sensitivity to aesthetic values, historic cultural landscapes, and the historic context, utilizing the services of professionals with experience in areas related to historic preservation. Design shall include aesthetic treatments to surfaces, structures, portals, appurtenances, and land contours and landscaping that complement the historical contexts of historic properties and in keeping with the HPPs for those areas.."



Opening at Kiln 48003



Stone arch opening at Kiln 48001



Arched openings at Kiln 48002

Project Stipulations - East End Crossing Corridor

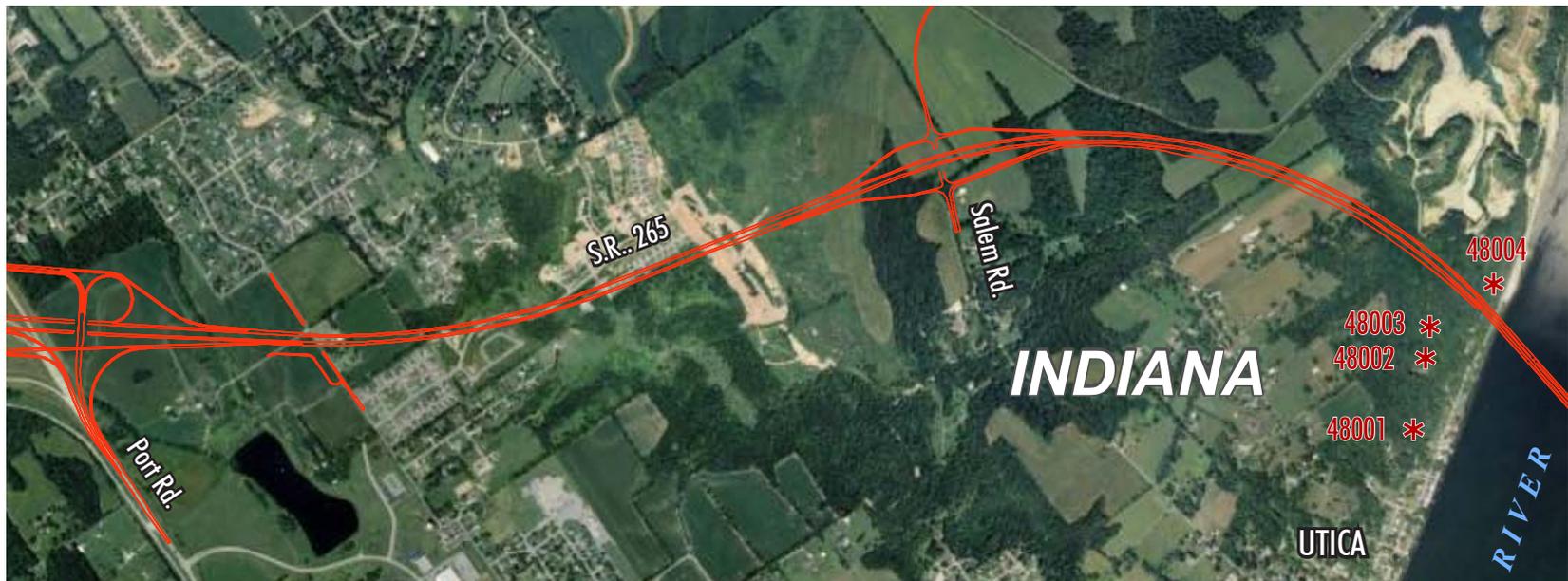
RECOMMENDATIONS

Such a design approach to the East End Crossing corridor presents numerous opportunities to increase the level of design along the interstate. The key is to protect and preserve the historic integrity of the lime kilns and the character of Utica Township. As the design process moves forward, it is the responsibility of the roadway designers, and IHPAT and BSHCT members to determine the feasibility, or degree, in which to incorporate these design opportunities throughout the Project.

Components of the interstate such as bridge overpasses, retaining walls, lighting and landscaping represent various opportunities to increase the level of design along the interstate and associated right-of-way. Design elements could utilize contemporary materials interpretive of native materials found along the Ohio River corridor and Southern Indiana region. It is also recommended that such design features reflect a sense of longevity and permanence. The use of rusticated

stone or concrete reflecting the scale and appearance of the stone kilns, or the natural limestone outcroppings along the river valley should be considered. "Soft" elements associated with the interstate system such as landscaping and drainage also provide design opportunities along the corridor. Natural treatments provide the functional benefits of shade, screening and buffering, along with the aesthetic benefits of texture and seasonal color.

Preliminary design plans for the East End Crossing include the incorporation of a multi-use path or bikeway within the East End Crossing corridor. Such a bike facility will extend from the new East End Crossing to the interchange at Salem Road. Project designers should coordinate this feature to connect with the one planned as part of bridge facility and Kentucky's East End Approach.



S.R. 265 and East End Crossing Corridor - S.R. 62 to the Ohio River

4.1a Archeological Resources

This section provides an overview of some of the potential archeological issues relevant to the Project within the scope of the historic preservation plan. Archeology utilizes the cast-off, lost, and sometimes intentionally buried materials left in the ground to reconstruct the past. Any kind of disturbance or construction activity could potentially erase these deposits and remove any opportunity for further study.

Archeological sites can be found side-by-side or even superimposed on one another. Examples of site types include Native American sites, early rural farmsteads, residential sites, industrial sites, roadways and railroads, and military sites. Archeological resources are often fragile and always non-renewable. Once disturbed, such resources cannot be replaced.

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Although the new S.R. 265 extension will not directly affect three of the four lime kilns, what is not known are the impacts to currently-unknown underground artifacts, or “deposits,” during the construction process. The historical research conducted for the four lime kilns revealed the potential for other lime kilns and/or industrial sites around the Utica area. Because the full extent of the lime industry in Clark County remains undetermined, the proximity of the roadway to these four kilns could impact buried or undiscovered deposits. As noted in **Stipulation IV.B.2** of the Project’s First Amended MOA, the:

FHWA shall examine all locations where ground-disturbing activities are proposed or where they may occur within temporary easements and permanent right of way. These locations may include, but are not limited to, roadway cuts and fills, bridge foundations, tunnel shafts, drainage excavations, waste areas, borrow sites, dredge disposal sites, construction staging areas, storage areas, and wetland and other mitigation sites.

Introduction

Whereas the previous section outlined recommendations relevant to design issues along the East End Crossing, the remainder of this chapter addresses stipulations specific to kilns 48001, 48002, 48003 and 48004. The following information focuses on maintaining and protecting the kilns throughout the construction of the Bridges Project. As described below, this will require establishing a baseline or benchmark of the kilns' existing conditions, monitoring them during construction, and possibly repairing any damage resulting from construction activities.

4.2 HISTORIC RESOURCE STIPULATIONS

The following information addresses **Stipulations III.H.1-8** as detailed in the Project's First Amended MOA. These stipulations focus on maintaining the historic integrity of the four lime kilns. The implementation of these recommendations will need to be evaluated as the design process moves forward for the Bridges Project to determine their feasibility and impacts. This decision-making process will include the collective input of IHPAT members to ensure historic and/or archeological considerations are considered.

4.2a Lime Industry Educational Pamphlet

Research conducted as part of this historic preservation planning process has revealed a great deal of information about the lime industry in Utica Township and Southern Indiana. In addition to this HPP, the MOA stipulates the Bridges Project create and publish an informational pamphlet summarizing the findings of the lime industry research for Clark County. As noted in **Stipulation III.H.1:**

In consultation with the INSHPO, INDOT will develop and publish a pamphlet for public distribution presenting the results of the lime industry study.

It is important to share this information with the general public to raise their awareness about not only the existing kilns, but

also the extensive lime industry that shaped the Town of Utica. This research, in addition to the numerous photos of the four kilns, should be incorporated into a user-friendly and informative brochure for distribution throughout Southern Indiana. Highlighting the history of the lime industry and associated lime kilns would raise the awareness of these important resources and could help spur efforts to preserve them for future generations.

4.2b Condition Report

To effectively monitor the kilns during the roadway construction process, it is critical to have an established baseline for the kilns' existing conditions. As noted in the stipulation below, the scope or extent of such a report should be determined between INDOT and INSHPO. To that end, **Stipulation III.H.2** states:

Prior to initiating any construction activities within 1,000 feet of the individual lime kilns districts, the BSMT shall prepare a Condition Report of these resources that includes photographs to serve, in part, as a baseline to measure any construction related damage that may occur to the kilns. The documentation shall be at a level agreed upon between INDOT and INSHPO.



Deterioration of stone wall at Kiln 48002

4.2c Blasting / Vibration Plan

Due to the scope, duration and type of construction to take place as part of the Bridges Project, it is important to protect historic resources during construction. **Stipulations II.L and III.H.3** call for INDOT to ensure the construction contractor develops a blasting/vibration plan prior to the inception of any construction activity that may include blasting or result in vibration.

Stipulation III.H.3 states that:

Prior to initiating construction activities, the BSMT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the three lime kilns identified as IE-HC-48002, IE-HC-48003, and IE-HC-48004 and associated archaeological sites 12CI 561 and 12 CI 934 as set forth in Stipulation II.L. The location of these three kilns shall be noted in the plans for the contractor's use to protect these resources. This plan shall include provisions for construction monitoring for this property.

Such plans would include provisions for pre- and post-construction surveys, monitoring, and similar measures to minimize harm to the designated kilns.

4.2d "No-Work-Zone" Delineation

In order to further minimize potential damage to kilns 48002, 48003 and 48004, INDOT is responsible for delineating a "no-work-zone" around these resources. According to **Stipulation III.H.4:**

The BSMT shall delineate a "no-work zone" around lime kilns identified as IE-HC-48001, IE-HC-48002, IE-HC-48003, and IE-HC-48004 and associated archaeological sites 12 CI 551, 12 CI 561, and 12 CI 934, as set forth in Stipulation II.N. The "no-work zone" shall generally extend 100 feet from the kilns. Because the associated quarries do not require preservation in place, portions of the quarries beyond the 100-foot boundary are not included within this restriction. Quarries that are adversely affected by the Project will be documented at a level agreed upon by INDOT and the IN SHPO.



Kiln 48004 north of Project Right-of-Way



According to **Stipulation II.N**, a "no-work-zone" is defined as:

an area where any potentially damaging Project activities such as storage yards, waste disposal, borrow pits, staging areas, or other related activities shall not be permitted.

In addition to areas surrounding the lime kilns, there may be other areas within or near the Project area where construction activities may be limited due the rugged, natural landscape. INDOT shall consult with the Bi-State Historic Consultation Team to determine these "no-work-zone" locations and subsequently designate them on construction plans and contract documents.

4.2e Lime Kiln Repairs

The MOA also addresses the situation if damage does occur to the kilns as a result of roadway construction activities. If it is determined that the Bridges Project causes damage to the kilns,

Stipulation III.H.5 states:

The BSMT shall repair any damage caused as a result of Project construction to the three lime kilns, noted above, in accordance with accepted preservation standards and in consultation with the INSHPO.

4.2f Lime Kiln Acquisition

During the initial EIS for the Project, preliminary designs for the East End Crossing had kiln 48004 within the Project right-of-way. As a result of subsequent, detailed design efforts, the corridor's approach shifted downriver from the kiln. This places kiln 48004 outside of the Project's right-of-way. However, due to its location adjacent to Upper River Road the kiln remains threatened. It remains incumbent upon INDOT and the Project to pursue all reasonable efforts to purchase and/or preserve this resource as part of the overall integrity of associated historic resources - namely the other three kilns. As noted in **Stipulation III.H.6:**

The lime kiln identified as IE-HC-48004 has been determined to fall within the Clark County owned right-of-way of Upper River Road; the BSMT will work with Clark County to place a preservation easement for kiln IE-HC-48004 as set forth in Stipulation II.H.

Due to the historic nature of the kiln, it is imperative the structural integrity of this unique resource is maintained and preserved in place. The Project must work with Utica officials to develop an arrangement to place an easement on the kiln. This kiln, as well as the other three kilns, has deteriorated over time due to neglect and the lack of routine maintenance. The following information outlines general information, or background, regarding the placement of a preservation easement on kiln 48004.

Historic preservation easements are acquired interests in a building or property owned by another to maintain its historic integrity. An easement is an effective preservation tool which precludes a property owner from making nonconforming alterations to the structure in question. Easements can be placed on properties that are certified historic structures or historically important land areas, which may be accessible to the public with the degree of access tailored according to the historic resource. A certified historic structure is a building or structure that is either individually listed in the National Register of Historic Places or deemed to be contributing to the historic significance

of a NRHP historic district. Easements have several important characteristics including:

- They may be transferred from the original purchaser to another
- They are binding on subsequent purchasers of the property
- May be acquired through a gift or purchase
- The donation value of the conservation easement may qualify as a deduction for federal income tax purposes.

As noted in **Stipulation II.H**, this easement shall be placed on kiln 48004 in perpetuity by INDOT and held by a local government, local or state preservation organization, or similar agency as determined by INDOT and approved by the INSHPO. A single, lump-sum monitoring fee will be determined based on negotiations between INDOT, the easement holder, and the INSHPO. This agreed-upon amount will be paid by INDOT to the easement holder to monitor and enforce these preservation restrictions.

If it is not feasible to preserve the kiln in place, a second option would be the relocation of kiln 48004 to a new (safer) location. Although such a move would compromise the original context of the kiln, the existing surrounding context is not conducive to the long-term stability and preservation of the kiln. The existing kiln remnants could be properly documented, dismantled, and reconstructed in a more appropriate location. Such an exercise would need to abide by the *Secretary of the Interior's Standards* for relocating such historic resources. As is discussed in the following chapter, if a public area could be set aside as a means to preserve kilns 48002 and 48003, a small area could also be reserved to relocate kiln 48004. INDOT should coordinate closely with the Indiana State Historic Preservation Office (INSHPO) to determine if the benefits would outweigh the costs or potential threats to the long term stability of the kiln.

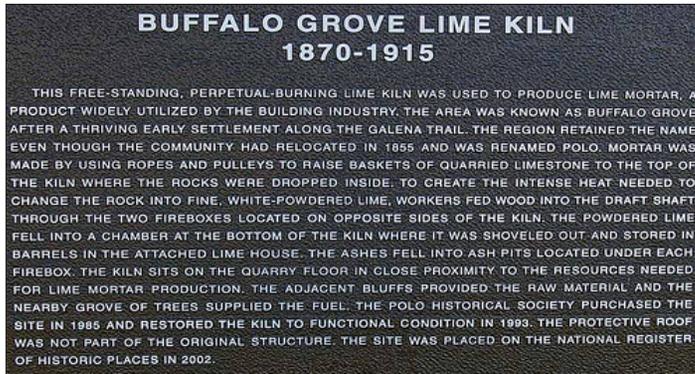


Example of interpretive signage found along Jeffersonville’s Riverfront

4.2g Interpretive Marker

Interpretive or historical markers are used to interpret, promote, and protect historic and cultural resources. Such signage is also a popular and effective method of educating the general public about a historic person, event or place. According to **Stipulation III.H.7:**

The BSMT, in consultation with INSHPO, will develop and place an interpretive marker along Utica Pike as set forth in Stipulation II.K that describes the importance of the lime industry in the area and the significance of the kilns and quarries.



Buffalo Grove (IL) Lime Kiln marker example

A combination of text and/or historic photographs is often used to explain the historical significance of a person, event, existing building or site, or a building no longer standing. An interpretive marker along Upper River Road could succinctly describe the purpose of the lime kilns and the role the lime industry played in the early development of the Town of Utica and Utica Township.

The design, scale, and material of such a sign should be appropriate to the scale and character of this rural section of road. It is important to locate/place any signage in an effective manner that does not create a safety concern for motorists. This could require a "pull-off" area or small parking area along Upper River Road to allow motorists to safely pull out or into traffic flow. Another option would be to place the interpretive marker along any future public road associated with new development near the kilns. Ideally, such a marker would be placed in such a manner to allow readers to see one or both kilns. As noted in **Stipulation II.K**, any signage "shall be placed within the right-of-way of public streets, or on easements" with the approval of the agency holding title to such right-of-way. Furthermore:

The BSMT shall coordinate the text and placement of the signs with the respective Historic Preservation Advisory Team and may implement this provision through existing state historic marker programs where determined appropriate.

4.3 NATIONAL REGISTER CONSIDERATIONS

In addition to other Bridges Project initiatives to mitigate adverse effects on historic resources, INDOT has an opportunity and a responsibility to preserve and enhance the historic integrity of the four lime kilns through various methods. **Stipulation III.H.8** of the MOA states that BSMT will develop documentation for,

Wikipedia Entry (Accessed April 30, 2009)

and seek, NRHP nomination for the four lime kilns. This final stipulation pursuant to the lime kilns states:

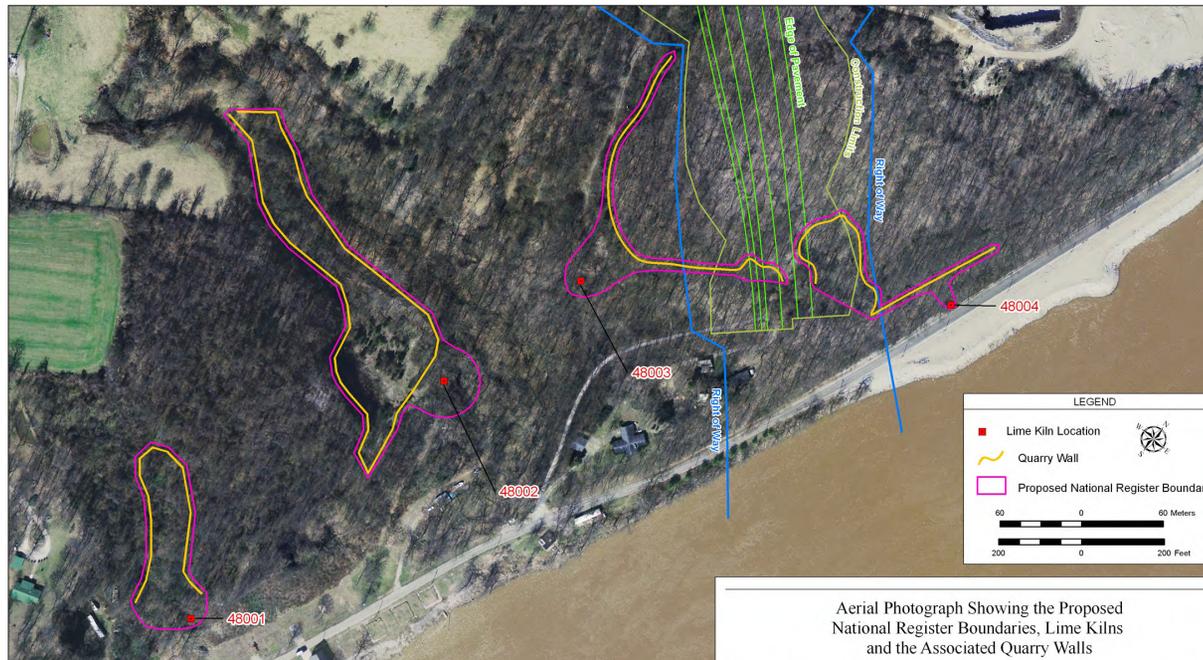
The BSMT will develop documentation for and seek NRHP nomination for the lime kilns and associated quarries as set forth in Stipulation II.I.

4.3a National Register Documentation and Nomination

As outlined in *Section 5.5-Relevant Case Studies*, there are several lime kilns in the Midwest region listed on the National Register of Historic Places (NRHP).

A National Register nomination for the lime kilns has been prepared per **Stipulation III.H.8** of the First Amended MOA. A multiple resource nomination for the Lime Manufacturing

Resources of Utica, Indiana, encompassing the four lime kilns and their associated quarries, is currently under review by the Indiana SHPO. The kilns are recommended as eligible for inclusion in the National Register under Criterion A and the quarries are recommended as eligible under Criteria A and D. These resources are important examples of not only Utica's industrial past, but also an important part of Indiana's overall lime industry. The Indiana SHPO has indicated that preservation in place of the quarry walls and open spaces in or around the quarries is not necessary as long as additional documentation of these resources is prepared. Such documentation would include a site plan of quarry walls, including measurements, photographs of the walls and floors of the quarries and their context, and a description of the quarry walls including visible evidence of human activity.



Proposed National Register Boundaries for Lime Kilns and Associated Quarry Walls

C H A P T E R F I V E
Additional Recommendations

Introduction

Like most counties adjacent to major metropolitan areas, Clark County has witnessed the impacts of suburban sprawl. Since the end of World War II, much of Clark County's rural landscape and many of its historic resources have been lost as a result of suburban development. With the addition of a new East End Crossing, it is important now, more than ever, to protect and highlight remaining resources. Resources like the lime kilns highlight the area's unique history and contribute to the distinctive identity and sense of place of Clark County.

Whereas the previous chapter addressed specific MOA stipulations for the East End Crossing and the lime kilns, the recommendations in this chapter respond to proposed development pressures that could affect the integrity of the kilns. It is understood that the BSMT, the decision-making body of the Bridges Project, is not required to implement any of the following recommendations and may decide not to adopt/approve such items. Furthermore, the approval of this HPP does not bind the BSMT or Project designers to the recommendations in this chapter.

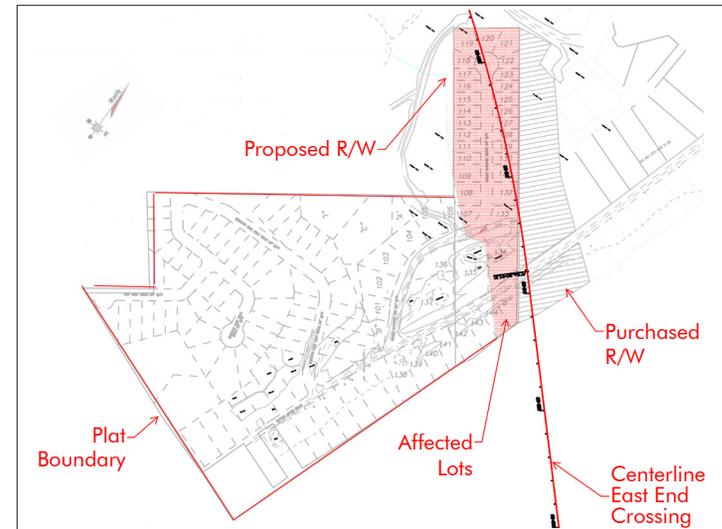
However, the Project does include a provision for exploring recommendations beyond the scope of the MOA. Below is an excerpt from MOA **Stipulation II.F** outlining a rationale for additional items/recommendations in the HPP that could be funded by the Project if the Bi-State Management Team deems appropriate.

The HPP may include recommendations for additional measures that could be implemented and funded by others outside this First Amended MOA. Additional avoidance, minimization, or mitigation measures identified in the HPPs which may not have been specified in this First Amended MOA, but are found by the Historic Preservation Advisory Teams to be reasonable to incorporate into the Project will be considered by the Bi-State Historic Consultation Team and

may be submitted to the Bi-State Management Team for possible implementation as part of the Project. The HPP for a property or district shall be completed within three years of the execution of this First Amended MOA.

Because Kilns 48001, 48002, and 48003 are, and will remain, on private property, the recommendations in this chapter go beyond the scope (and funding) of the Bridges Project. Kiln 48004 is in the public right-of-way of Upper River Road. Due to the nature of the proposed development on the kilns, it was deemed important by the IHPAT members to include additional strategies that could assist the developer of the sites.

The completion of the East End Crossing of the Ohio River will bring added development pressures to Utica and Clark County. This final chapter takes an expanded, yet strategic, look at opportunities to preserve the lime kilns based on the realities surrounding the properties. It is important to discuss how some of the (indirect) influences of the Bridges Project and future



Proposed Lime Kiln Ridge Subdivision and Project Right-of-way



development may affect the existing context of Utica Township. The following recommendations detail several opportunities to balance economic pressures for development with the cultural and natural context in this part of Utica Township.

5.1 PROPOSED LIME KILN RIDGE SUBDIVISION

Currently, there are plans filed with Clark County to develop land on which lime kilns 48001, 48002 and 48003 are located into a residential subdivision called *Lime Kiln Ridge*. The graphic on the preceding page illustrates the proposed subdivision. As it is currently designed, the proposed subdivision will essentially cut off the three kilns from public view and access. Furthermore, the eastern edge of the subdivision falls within the proposed right-of-way of the Project roadway.

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Based on preliminary discussions, the developer has expressed an interest in preserving the kilns and potentially reevaluating the subdivision's design to better incorporate the affected lime kilns. The following section outlines opportunities to combine these historic resources into a residential subdivision that would be unique to Clark County.

5.2 ALTERNATIVE DEVELOPMENT CONSIDERATIONS

If residential development on or adjacent to the lime kiln properties is deemed the only viable mechanism for preserving the historic structures, it should be done in a manner that is respectful and sensitive to the existing rural character of the area. This approach focuses on encouraging innovative growth patterns that are sensitive/compatible with the lime kilns and surrounding natural resources.

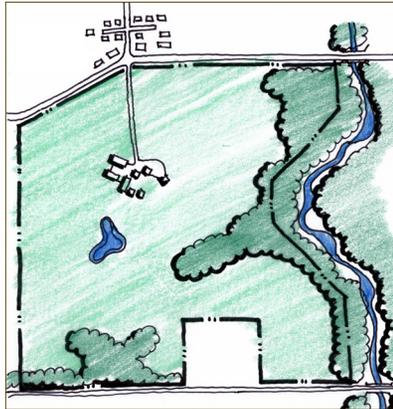
Conservation design principles offer an alternative to traditional development practices. This design alternative seeks to balance growth within desirable areas, while simultaneously preserving

or conserving the unique natural, historic, or cultural resources and open space in those same areas.

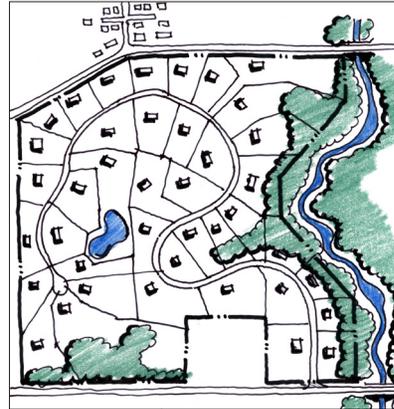
Attractive natural features that are conveniently located near urbanized areas (like those areas in Clark County) experience the most development pressure from those who prefer to live in rural (i.e. "undeveloped") areas. Suburban commercial development soon follows residential development. If not developed in a planned and thoughtful manner, the area that was once the subject of desire may become degraded, losing the character that originally attracted residents. The following design can stave off low quality development that diminishes the natural setting, and at the same time, create a lively and thriving village atmosphere.

The development scenario shown in the illustrations on the following page is adjacent to an urbanized area with nearby community facilities. The natural feature could be woodlands, wetlands, dunes or farmlands which the community would like to have remain intact so there is minimal disturbance of the ecosystem. Any proposed residential development should not destroy the lime kilns or cut them off from the general public's view. The following information is presented as an alternative to typical, suburban residential development in the event that development pressures are too great to preserve the existing wooded open space surrounding kilns 48002 and 48003. The design of such residential subdivisions is commonly referred to as "conservation subdivisions". The primary goal of such developments is to preserve and highlight the features that make the area unique - in this case the lime kilns and wooded hillsides. They offer more open space for neighborhood interaction and enable better protection of natural features while allowing residents to take advantage of natural amenities and views.

Open space preservation will be paramount to retaining the high level of landscape integrity currently found around the kilns. The site currently features steep grade changes resulting, in part,



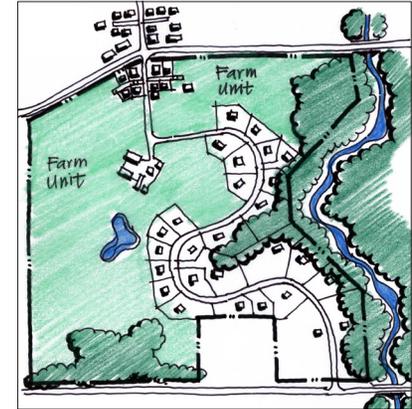
A hypothetical site adjacent to an existing rural village. This site contains a farmstead, a natural stream, areas of forest, and a pond. Development pressures encourage residential development on this site.



Traditional Zoning example illustrating the removal of the existing farmstead and a very narrow buffer for the natural stream corridor adjacent to the site. Many of the site's unique features are lost or diminished in this approach.



Cluster Zoning example illustrating the removal of the existing farmstead, a larger buffer for the natural stream corridor, and small greenways traversing the community. This option allows for added connectivity, shared greenspace, and greater protection of natural features.



Conservation Subdivision incorporating the existing (working) farmstead, a larger buffer for the natural stream corridor, expansion of the existing rural village adjacent to the site, and a vast amount of land with several possibilities for field crops, pasture land, or shared recreation area residents.

from quarries associated with the lime kilns. A grade change of roughly 100 feet occurs between Upper River Road and the top of the bluffs above the quarries. Minimal grading and earthwork should be performed to accommodate development on the site. If the existing topography cannot support proposed development, the land should be preserved as open space. Preservation of natural topography is critical to retaining the character of the area. Mass grading is not appropriate on any portion of the site. These principles can also ensure that alterations to the land occur in a manner which minimizes stormwater impacts to local water quality. All stormwater should be handled within the district according to these principles. Technologies such as bioswales, raingardens, greenroofs, and porous pavements should be implemented to mitigate the effect of stormwater from new development.

As this section and associated graphics describe, there are a number of methods to incorporate new development without damaging or destroying the lime kilns. In fact, the creative incorporation of the lime kilns into a development could create a unique amenity for interested buyers. The following conceptual alternatives are intended to illustrate that a residential development is feasible when considering the lime kilns, associated resources, and natural features. These concepts also take into consideration the proposed right-of-way for the East End Crossing corridor and the associated loss of buildable lots.

5

Land Use Opportunities

RECOMMENDATIONS

5.2a Conceptual Residential Alternative "A"

This alternative seeks to link lime kilns 48002 and 48003 by way of a public greenway or park. The greenway connecting to Upper River Road also serves as a natural buffer for the small stream that feeds into the nearby Ohio River. There are also two points to access Upper River Road from the subdivision. There are 73 possible building sites north of Upper River Road in this scenario. Additional features of this conceptual plan include:

- Could accommodate approximately 73 home sites
- Does NOT account for existing residences along Upper River Road

- Provides only a limited greenway or natural buffer along the existing stream
- Limited buffer area or natural screen between the development and the East End Crossing corridor

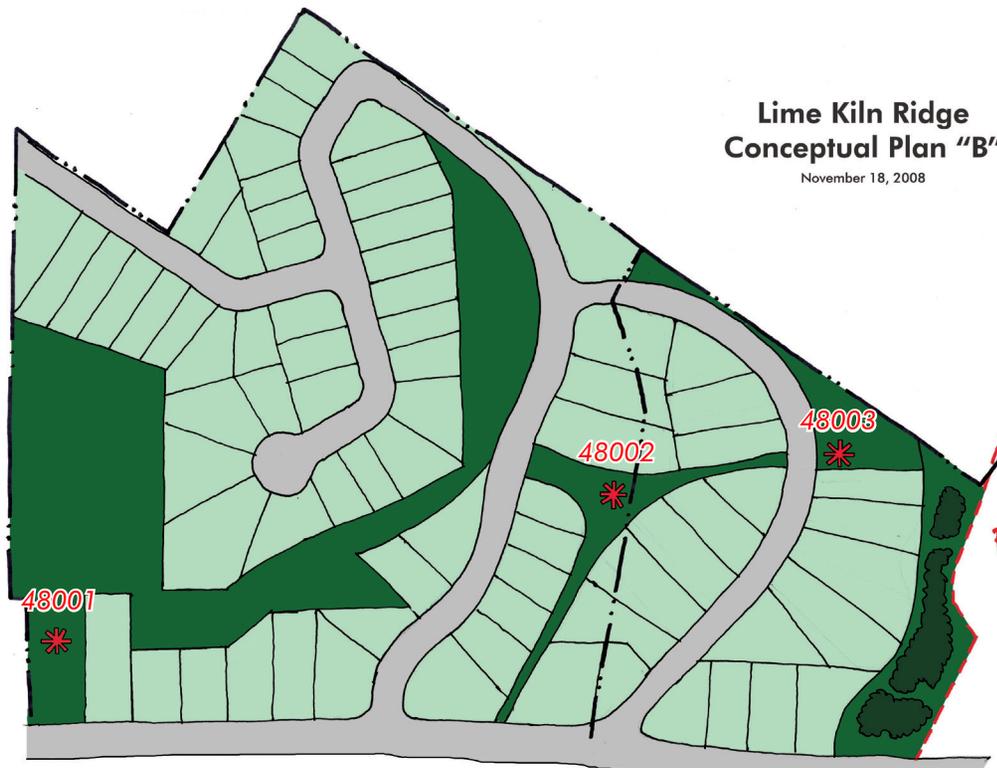


5.2b Conceptual Residential Alternative “B”

Similar to the previous conceptual plan, Alternative “B” provides a limited buffer or greenspace adjacent to the three kilns. This plan seeks to link lime kilns 48001, 48002 and 48003 by way of a public greenway or park. Similar to the previous concept, this scenario provides a greenway buffer along the stream to Upper River Road, as well as dedicated open space at the base of the quarry bluff. However, this open space also layout also creates a linkage to kiln 48001. Additional features of this conceptual plan include:

- Could accommodate approximately 74 home sites
- Continuous greenspace linking all three kilns

- Provides only a limited greenway or natural buffer along the existing stream
- Proposes a greater buffer area or natural screen between the development and the East End Crossing corridor
- Opportunity to (internally) connect potential future development west of subdivision
- Does NOT account for existing residences along Upper River Road



5

Land Use Opportunities

RECOMMENDATIONS

5.2c Conceptual Residential Alternative "C"

This third option sets aside the most greenspace around the kilns to create a larger buffer area. Although this scenario reduces the number of residential lots to approximately 66 sites, it is the most historically-sensitive of the three alternatives. This additional greenspace could also accommodate the re-location of Kiln 48004 if all other options to preserve the kiln in place are exhausted. There is also a larger, public greenspace dedicated along the small stream. This could not only serve as a part of the trail system, but also would serve a way to enhance this natural corridor and protect the quality of water flowing through the site and into the Ohio River. Additional features of this conceptual plan include:

- Could accommodate approximately 66 home sites

- Public greenspace along the large quarry wall
- 2 points of access from Upper River Road
- Continuous greenspace linking all three kilns
- Public parking area/access from Upper River Road to kiln 48001 that could also include interpretive signage
- Opportunity to (internally) connect potential future development west of subdivision
- Accounts for existing residences along Upper River Road
- Limited buffer area or natural screen between the development and the East End Crossing corridor

66



**Lime Kiln Ridge
Conceptual Plan "C"**

May 12, 2009

It should be noted these conceptual plans do not factor in site engineering issues, existing zoning codes, or other unknown issues. These designs also do not account for associated features such as the quarries or “hidden” resources that may be part of the historic lime manufacturing operations. The development of the three scenarios are based on the parameters set forth by the subdivision plan submitted to the Town of Utica and filed with Clark County officials. Each of these scenarios sets aside public open/park space as a buffer between future (housing) development and the lime kilns. Creating access to the lime kilns can help increase public appreciation of the history and importance of the lime industry in Utica Township. This could enhance the sense of place and identity of the development and Utica as a whole. Access to these historic resources, along with interpretive signage relating the history of the lime industry, can serve as an amenity for residents of the development and the community at large.

5.3 CONSERVATION EASEMENT

A Conservation Easement is a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values. It allows the property owner to continue to own, occupy, and use his or her land and to sell it or pass it on to heirs.

Just as mineral rights to a property can be sold to a private company, a landowner can sign a contract with a land trust that limits activities now and in the future, while still maintaining ownership of the land. Conservation easements can be tailored to the property and wishes of the donor to cover only certain activities or areas. An easement may apply to just a portion of the property, and it need not require public access.

There are two other advantages to conservation easements. First, a landowner can take a deduction from federal income taxes

for a charitable contribution equal to the difference in appraised value of the property before and after the easement is granted.

When a property owner donates a conservation easement to a land trust, one gives up some of the rights associated with the land. For example, one might give up the right to build additional structures, while retaining the right to grow crops. Future owners also will be bound by the easement’s terms. The land trust is responsible for making sure the easement’s terms are followed.

A landowner sometimes sells a conservation easement, but usually easements are donated. If the donation benefits the public by permanently protecting important conservation resources and meets other federal tax code requirements, it can qualify as a tax-deductible charitable donation. The amount of the donation is the difference between the land’s value with the easement and its value without the easement. Placing an easement on your property may or may not result in property tax savings.

Perhaps most important, a conservation easement can be essential for passing land on to the next generation. By removing the land’s development potential, the easement lowers its market value, which in turn lowers applicable estate tax. Whether the easement is donated during life or by will, it can make a critical difference in the heirs’ ability to keep the land intact.

Source: Sycamore Land Trust

5.4 PUBLIC PARK SETTING

In the event a residential subdivision does not come to fruition, the most appropriate solution would be the creation of public open/green space linking the three kilns. The combination of unique historic resources, wooded hillsides, and small creek located along the scenic Ohio River could present a powerful setting for a public park. To retain the existing historic integrity of the lime kilns and any associated lime industry activities, the surrounding landscape must also be protected. Retaining this valuable open space in an area with increasing development pressure will require careful planning and site programming.

The site must become both an asset for the Town of Utica and a sought-after destination for local residents. It may also appeal to regional travelers. Because this area is within the Ohio River watershed, retaining its natural features would also serve to protect and enhance the water quality of the river. There are a number of approaches that could be used to create such a park-like setting. A passive use park that serves to preserve and interpret the history of the lime kiln industry could be created to protect these historic resources and the scenic beauty of Utica Township, while also providing walking, biking or hiking trails. Such a trail system could potentially link with the designated bike facility that will extend along the East End Crossing.

Although the Town of Utica has limited resources, every effort should be made by the town, or another public entity, to purchase the portion of property containing the lime kilns. With the kilns under public ownership, the maintenance, restoration, and preservation of the kilns would be eligible for a variety of grants and other funding sources. Such an arrangement could also allow the property to be used as a public park by nearby residents, or attract people from nearby Jeffersonville, Clarksville or Louisville. This final section outlines recommendations, or case studies, that could create a cohesive site that preserves these significant historic resources, and appeals to a variety of user groups.

5.5 RELEVANT CASE STUDIES

The remainder of this chapter summarizes a number of similar examples of archeological sites that have been identified and preserved. The intention of this information is to illustrate how government organizations or private interests have developed innovative ways to not only protect these unique resources, but also create educational initiatives to inform the general public. Such an educational component raises the public's awareness of a community's past, and can generate a greater appreciation for preserving historic and archeological resources for future generations.

5.5a Wabash & Erie Canal Park - Delphi, IN



Wabash and Erie Canal Park

WABASH & ERIE CANAL CONFERENCE AND INTERPRETIVE CENTER

Delphi is located in Carroll County, Indiana, near the mid-way point along the historic 468-mile Wabash and Erie Canal that connected Lake Erie to the Ohio River through Indiana and Ohio. Construction of this man-made waterway extending from Toledo to Evansville began in 1832 and was completed in 1853. Significant structural remnants of the canal are identified along Delphi Historic Trails.

To celebrate the canal's history, a dedicated group of Delphi residents joined together in 1974 to form the Wabash and Erie Canal Conference and Interpretive Center. Associated with the Interpretive Center is Canal Park, which includes a seven-mile

trail system as well as three sites listed in the National Register of Historic Places, including:

- Irish workers’ construction campsite
- Lock #33 and lockkeeper’s house site
- Harley & Hubbard Lime Kilns

The 12,000 square-foot Interpretive Center opened in 2003 and includes a museum space for over sixty exhibits and panels, as well as a conference center. The building project was funded primarily through the Department of Transportation, and much of the exhibition space was funded by a \$212,000 grant from Department of Natural Resource’s Wabash Heritage Corridor Fund. During 2009-2010, a historic lime kiln threatened with demolition was dismantled and reconstructed in Canal Park, creating a new feature along Delphi Heritage Trails.

This case study demonstrates the successful preservation and reuse of a community’s historic resources for future generations. This outdoor interpretive park creates a visible, tangible opportunity to inform the general public about the types of industrial activities, including the lime kilns, that helped shaped the development of Delphi. The park also serves as a recreational attraction for residents of surrounding counties, drawing visitors to Delphi and boosting the local economy.



Griggsville Landing Lime Kiln

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

5.5b Griggsville Landing Lime Kiln - Pike County, IL
 The Griggsville Landing Lime Kiln is located in the Ray Norbut State Fish and Wildlife Area. This 1,140-acre conservation area, located along the Illinois River five miles east of Griggsville, is comprised of bottomlands, woodlands,

wetlands, open fields, steep hills, rocky ravines, and bluffs. Griggsville Landing was a steamboat stop established in the 1830s about a half-mile north of where the kiln was eventually built. The landing featured a warehouse from which farmers and merchants shipped their goods, a boat yard, hotel, and a grist mill.

The Griggsville Landing Lime Kiln is one of the best-preserved kilns in Illinois. Although the date of construction of the lime kiln is not known, historic deeds and tax records of this and adjacent properties suggest the kiln was built in the mid-1850s. The Griggsville Landing Lime Kiln was listed in the National Register of Historic Places (NRHP) in 1999. The kiln was part of a small commercial operation that functioned prior to the industrial intensification of the lime industry which occurred immediately after the Civil War.

The lime kiln is relatively isolated on the Ray Norbut State Fish and Wildlife Area since it is used primarily by hunters and hikers. The kiln is, however, located near a gravel county road and a small parking area is provided across the road from the kiln. In an effort to educate the public about the kiln, the Illinois Department of Natural Resources published a brochure based on information gathered during the NRHP nomination process. In 2008 the IDNR prepared a wayside “table top” exhibit for installation at the nearby parking lot. This will help to inform visitors about the kiln’s history and operations. Due to limited funding, the IDNR has no plans to restore the kiln, or provide any amenities or facilities around the kiln.

Source: IDNR’s Cultural Resource Program and from the Griggsville Landing Lime Kiln brochure.

5.5c Buffalo Grove Lime Kiln - Ogle County, IL



Restored Buffalo Grove Lime Kiln

Wikipedia / Andy McMurray

Along with the Griggsville Landing Lime Kiln, the Buffalo Grove Lime Kiln is the only other lime kiln in Illinois listed in the National Register of Historic Places. The lime kiln was added to the National Register in 2002. The Buffalo Grove Lime Kiln is located near the Ogle County city of Polo.

According to news articles of the day, the kiln dates

to 1870 and is constructed of locally-quarried limestone. It is classified as a wood burning, perpetual kiln, or “draw-down” kiln. The fire boxes are found outside the interior vertical column, which climbs twenty-five feet into the air.

After sitting idle for decades the Buffalo Grove Lime Kiln was acquired by the Polo Historical Society in 1985. This small, non-profit organization began clearing trees, brush and debris around the kiln. Restoration of the kiln began in 1992 and took approximately one year to complete. Deteriorated mortar around the limestone base was removed and replaced. The original wooden superstructure of the kiln, which had deteriorated completely, was reconstructed. During the restoration of the kiln, an aluminum roof was added to protect it from future deterioration. The attachment of the roof has rendered the kiln inoperable, although if it were removed the Buffalo Grove Lime Kiln would be fully functional and ready for lime production.

An associated lime house attached to the kiln, which was demolished sometime during the early 1900s, was reconstructed during this restoration project effort. When the kiln was producing

lime, this small room served as a storage area. Using historic photographs as references, the lime house was reconstructed atop a stone foundation. The lumber used to construct the new lime house was authentic late-nineteenth century barn lumber. The entire restoration was completed in 1993 at a final cost of approximately \$10,000.

Today, the lime kiln is located along a relatively isolated dirt road that intersects Galena Trail Road in Polo, Illinois. The kiln is one of several historic sites located along the Galena Trail and Coach Road. This historic corridor traverses an eight-county area in northwestern Illinois, extending from Galena to Peoria. The Galena Trail and Coach Road corridor is being developed as a cultural tourism attraction highlighting historic Native American and pioneer sites within a number of rural villages and towns.

Source: Wikipedia, *The Galena Trail & Coach Road Society’s website*, and *The Polo Historical Society’s website*.

5.5d Lime Kiln Park Natural Area - Menomonee Falls, WI

Lime Kiln Natural Area is a diverse natural area along the Menomonee River corridor comprised of prairies, forested areas and wetlands. This urban park also contains a number of amenities including over sixteen acres of green/natural space with views of the river, multi-use trails, and historic structures.



Lime Kiln at Menomonee Falls

LandmarkHunter.com

The park derives its name from two historic lime kilns, which, along with the quarry, date from the 1840s and are listed in the National Register of Historic Places. The original Menomonee River falls in the park are flanked by the remnants of historic lime kilns on the

west and the original limestone quarry on the east. This lime kiln operation and quarry activity operated during the mid- to late-nineteenth century, and shaped early commerce in the Village of Menomonee Falls.

Source: *Village of Menomonee Falls' website and the Lime Kiln Park Natural Area website.*

5.5d Carlson's Lime Kiln at Barn Bluff Park - Red Wing, MN

Barn Bluff is located along the Mississippi River in Red Wing, Minnesota. During the nineteenth century, the bluff functioned as a visual reference for explorers and travelers. Today, the bluff



Carlson's Lime Kiln at Barn Bluff Park

overlooks downtown Red Wing and towers roughly four hundred feet above the Mississippi River.

In 1882, entrepreneur G. A. Carlson built a lime kiln into the base of Barn Bluff. This and other lime kilns were instrumental in Red Wing's economic and industrial development.

The bluff was used as a limestone quarry for approximately forty years until citizens protested the defacing of the bluff. Quarrying and lime production ended in 1908, and the land was donated to the city as a park in 1910. Carlson's lime kiln was listed in the National Register in 1976.

Today, Barn Bluff Park is part of the Red Wing park system. In addition to the Carlson lime kiln, the park has a hiking trail with a number of overlooks of the city and the river valley. The kiln is in need of basic stabilization measures and suffers from a lack of public visibility and awareness. Because of a lack of re-use

solutions and severely limited funding, the city is currently unable to sufficiently maintain and interpret this symbol of Minnesota's industrial past.

Source: *Waymark.com and The National Park Service website.*

5.5e Lime Kiln Demonstration Project - Hardwick Township, NJ

This lime kiln is located on privately-owned property near Blairstown, New Jersey. In 1998 the Hardwick Township Historical Society sponsored a lime kiln firing demonstration at this historic kiln to raise funds for the society's preservation efforts in the area. Due to the popularity of this initial kiln "burning" or firing, subsequent demonstrations have taken place at this restored lime kiln. Such an educational activity provides the general public with an opportunity to see how such kilns were used for the production of lime.

Source: *Hardwick Township Historical Society website.*

5.6 POTENTIAL IMPLEMENTATION PARTNERS

This section provides a general overview of relevant revenue sources presently available, new ways to approach development including public/private partnerships, and prioritizing stipulation expenditures. The Project's MOA contains specific stipulations that are funded as part of mitigation efforts relating to the Bridges Project.

5.6a Society for Industrial Archeology (SIA)

As stated on its website, the mission of the Society for Industrial Archeology (SIA) is to encourage the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts, and technology. The SIA was formed in 1971 to promote the study, appreciation, and preservation of the nation's industrial and technological past. The organization's principal concern is to preserve historically significant sites, structures, buildings, artifacts, industrial processes, bridges, railroads, canals, landscapes, and communities, and educate the general public of such structures' significance.

The SIA offers *Industrial Heritage Preservation Grants* ranging from \$1000 - \$3000 for the study, documentation, recordation, and/or preservation of significant historic industrial sites, structures, and objects. These annual awards are made to nonprofit organizations and qualified individuals. Contributions of in-kind services, as well as cash resources from the sponsoring and cosponsoring agencies may qualify for matching purposes. Funds may be used for a range of projects including, but not limited to: increasing public awareness of preservation efforts, photography, videography, preparing inventories and developing measured drawings of extant significant industrial sites, structures, maritime facilities and industrial artifacts.

The decision to award grants are made once a year at the SIA Annual Meeting (usually held in late May or early June). Applications must be received by March 31 to be considered for that year.

Source: Society for Industrial Archaeology website: www.siahq.org

5.6b The Archaeological Conservancy

The Archaeological Conservancy was established in 1980, and is the only national, non-profit organization dedicated to acquiring and preserving the nation's important archaeological sites. Based in Albuquerque, New Mexico, the conservancy also operates regional offices in Mississippi, Maryland, Ohio, and California.

Since its inception, the conservancy has acquired more than 325 endangered sites in 39 states. These preserves range in size from a few acres to more than 1,000 acres. They include the earliest habitation sites in North America, a nineteenth-century frontier army post, and nearly every major cultural period in between.

Major funding for the conservancy comes from its membership of more than 23,000 people, as well as from special individual (one-time) contributions, corporations, and foundations. Income from a permanent endowment supplements regular fund raising efforts. The Archaeological Conservancy often relies on money raised locally to purchase specific ruins in a community. When time is of the essence, the organization can tap into its revolving preservation fund to protect threatened resources.

For additional information, contact:

The Archaeological Conservancy - Midwest Regional Office
Paul Gardner, Midwest Regional Director
3620 N High Street, Suite 307
Columbus, OH 43214
(614) 267-1100

Source: The Archaeological Conservancy's website: www.americanarchaeology.com

5.6c The Sycamore Land Trust (SLT)

Sycamore Land Trust (SLT) is a non-profit organization based in Bloomington, Indiana whose mission is to preserve Indiana's disappearing landscape. SLT protects scenic beauty for the aesthetic enjoyment of present and future generations and also

- saves healthy, beautiful habitat for both humans and wildlife.
- creates outdoor learning experiences for all ages through SLT's Environmental Education Program.
- provides valuable ecological services that improve air, water, and soil quality.
- provides economic benefit by helping attract families, businesses, and visitors to southern Indiana.

SLT uses a variety of means to conserve properties, including outright ownership and conservation easements. These methods are described in *How Can I Protect My Property?*

Founded in 1990, Sycamore Land Trust preserves over 70 properties totaling more than **6,000** acres. Properties span ten counties, including Bartholomew, Brown, Crawford, Greene, Knox, Lawrence, Monroe, Morgan, Orange, and Owen Counties. SLT's service area, where the organization is eager to help more private owners protect their land, includes 26 counties: Bartholomew, Brown, Clark, Crawford, Dubois, Daviess, Floyd, Gibson, Greene, Harrison, Jackson, Knox, Lawrence, Martin, Monroe, Morgan, Orange, Owen, Perry, Pike, Posey, Scott, Spencer, Vanderburgh, Warrick, and Washington.

Source: *Sycamore Land Trust* website: <http://sycamorelandtrust.org>

Appendix

Introduction

Many of the procedures necessary to implement the Historic Preservation Plan's recommendations already exist. Implementation can only be successful with the involvement of private owners/investors, community organizations and local government. The development of this plan is a step toward enhancing preservation efforts. It must be recognized that the funding capabilities of the FHWA, INDOT, or other agencies may not immediately support implementation of all strategies discussed in this plan. However, the purpose of this Preservation Plan for the Lime Kilns is to outline long term goals and strategies to maintain and strengthen the integrity of these historic resources and their natural setting.

A.1 FEDERAL FUNDING SOURCES

At the Federal level there are several programs that provide financial incentives for rehabilitating historic buildings. An investment tax credit program can provide a 20 percent tax credit on qualifying costs of a substantial rehabilitation to an income producing historic structure. The structure must be listed in the National Register of Historic Places, either individually or as a contributing building within a historic district. In conjunction with the Federal program, the State of Indiana administers a similar tax credit program through DHPA. Indiana provides an additional 20 percent credit up to \$100,000 toward one's state tax liability for qualifying expenses.

Indiana also has several organizations that can provide assistance to the owner of a historic building, including the Department of Historic Preservation and Archaeology (DHPA) and Indiana Landmarks (formerly Historic Landmarks Foundation of Indiana). The DHPA administers several grants and can provide a referral list of qualified professionals as well as assistance with nominations. The list below includes federal, state, and local funding opportunities for preservation related projects.

A.1a UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

www.usda.gov

The USDA's Rural and Community Development administers programs designed to develop essential community facilities for public use in rural areas. These facilities include schools, libraries, childcare, hospitals, medical clinics, assisted living facilities, fire and rescue stations, police stations, community centers, public buildings and transportation.

Rural Business Enterprise Grants - Rural Business Cooperative Services

Description:

To facilitate the development of small and emerging private business enterprises located in any area other than a city or town that has a population of greater than 50,000. Contact the state office.

Requirements:

Eligible applicants include: Public bodies, private nonprofit corporations, and Federal recognized Indian Tribal groups.

A.1b NATIONAL ENDOWMENT FOR THE ARTS (NEA)

www.nea.gov

The National Endowment for the Arts (NEA) offers grants to organizations in four categories: Creation & Presentation, Planning & Stabilization, Heritage & Preservation, and Education & Access. The funding is awarded to assist, preserve, document, and present those artists and forms of artistic expression that reflect our nation's diverse cultural traditions.

Access to Artistic Excellence Grant

<http://www.grants.gov/search/category.do>

Description:

Access to Artistic Excellence encourages and supports artistic creativity, preserves our diverse cultural heritage and makes the arts more widely available in communities throughout the

country. Support is available to organizations for preservation related projects that preserve significant works of art and cultural traditions

Requirements:

- 1. Available to non-profit organizations or public agencies
- 2. Urban design, historic preservation for architecture, landscape architecture.

Grant:

Range from \$5,000-\$150,000

A.1c NATIONAL TRUST FOR HISTORIC PRESERVATION

www.nationaltrust.org

The National Trust for Historic Preservation is a privately funded non-profit organization that provides leadership, education and advocacy to save America’s diverse historic places and revitalize our communities. They have funds related to historic homes, commercial buildings and nonprofit or government agencies.

Preservation Services Fund

www.nationaltrust.org/help/grants

Description:

Program made available to assist in costs for planning, feasibility studies, education and outreach, and fundraising.

Eligible Recipients:

Available only to non-profit organizations or public agencies

Grant:

50 percent - 50 percent matching program range from \$500 to \$5000

Johanna Favrot Fund for Historic Preservation

www.nationaltrust.org/help/grants

Description:

This fund provides nonprofit organizations and public agencies grants for projects that contribute to the preservation or the recapture of an authentic sense of place. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark.

Requirements:

Available only to non-profit organizations or public agencies

Grant:

Range from \$2,500 to \$10,000

National Trust Loan Fund

www.nationaltrust.org/help/grants

Description:

Below-market rate matching loans to help preserve historic properties. Funds can be used for rehabilitation costs or predevelopment costs.

Requirements:

Available only to non-profit organizations or public agencies

Loan:

50 percent - 50 percent matching loan up to \$150,000

Inner City Ventures Fund

www.nationaltrust.org/help/grants

Description:

Below-market rate loans and lines of credit to benefit low to moderate-income neighborhoods.

Requirements:

- 1. Available only to non-profit organizations or public agencies
- 2. For use in acquisition or rehabilitation costs

3. Project must provide housing and commercial development for neighborhood residents.

Loan:

Below-market rate loans up to \$150,000 and lines of credit up to \$200,000

A.2 STATE FUNDING SOURCES

A.2a INDIANA DEPARTMENT OF TRANSPORTATION (INDOT)

Division of Environment, Planning & Engineering
 100 N. Senate Ave.
 IGCN Room N848
 Indianapolis, IN 46204
 (317) 232-5468 Phone
 (317) 232-5478 Fax
<http://www.in.gov/dot/>

Transportation Enhancement Funds

http://www.enhancements.org/profile_search.asp

Description:

Transportation Enhancements (TE) activities are federally funded, community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of our transportation infrastructure. TE projects must be one of 12 eligible activities and must relate to surface transportation.

Requirements:

1. Local governments and state agencies may apply
2. Requires a 20 percent match minimum

Award Maximums:

\$1,000,000 for trail and ROW acquisition projects
 \$500,000 for other projects

A.2b INDIANA DEPARTMENT OF NATURAL RESOURCES (IDNR)

Indiana State Historic Preservation Office (INSHPO)
 Division of Historic Preservation and Archaeology (DHPA)
 Division of Outdoor Recreation
 402 W. Washington Street, W274
 Indianapolis, Indiana 46204-2739
 317-232-1646 Phone
 317-232-0693 Fax
www.in.gov/dnr

Historic Preservation Fund (HPF) Program

The DHPA promotes the conservation of Indiana's cultural resources through public education efforts, financial incentives including several grant and tax credit programs, and the administration of state- and federally-mandated legislation.

Each year, the DHPA receives funding under the Historic Preservation Fund (HPF) Program, which is administered by the U.S. Department of the Interior - National Park Service. The HPF Program promotes historic preservation and archaeology in Indiana by providing assistance to projects that will aid the state in meeting its goals for cultural resource management. Of Indiana's annual HPF allotment, about 85 percent is set aside to fund a matching grants program and cooperative agreements to foster important preservation and archaeology activities. This grant program provides awards in three categories: Architectural and Historical projects, Archaeological projects, and Acquisition and Development projects. Outlined below are examples of the eligible projects and other primary considerations relative to HPF funding.

Architectural & Historical Projects Eligible:

- Historic Sites and Structures Inventory Surveys
- National Register Nominations for Historic Districts
- Public Education Initiatives, Programs, Workshops, and Training Events Related to Preservation
- Publications and Brochures for Projects and Topics Related to Preservation

- Architectural/Engineering Plans and Specifications for the Rehabilitation of National Register-Listed Properties
- Feasibility Studies for the Rehabilitation and Adaptive Reuse of National Register-Listed Properties

Archaeological Projects Eligible:

- Archaeological Surveys
- Archaeological Testing and Research
- National Register Nominations for Archaeological Sites
- Public Education Initiatives, Programs, Workshops, and Training Events Relating to Archaeology
- Publications and Brochures for Projects and Topics Related to Archaeology

Acquisition & Development Projects Eligible:

- High Priority Work Items: Stabilization, preservation, rehabilitation, or restoration of an endangered National Register-listed property
- Middle Priority Work Items: Preservation, rehabilitation, or restoration of a non-endangered National Register-listed property; Utilities upgrades for a National Register-listed property; Preservation or restoration of interior features of high cultural or artistic value at a National Register-listed property
- Low Priority Work Items: Acquisition of a National Register-listed property; General interior rehabilitation or other non-urgent rehabilitation of a National Register-listed property; Undertakings for improvement of functionality, such as improved access and/or energy conservation, at a National Register-listed property
- Ineligible/Unallowable Work Items: New construction; Landscaping (other than grading necessary to correct drainage problems); Directional and/or interpretive signage; Museum exhibits

Eligible Recipients:

- Governmental agencies
- Educational institutions
- Not-for-profit organizations with 501(c)(3) tax exempt status

Requirements:

Must be listed in the National Register of Historic Places at the time of application

- Properties MUST be municipal or public facilities or quasi-public in nature (i.e. historical society buildings or museums normally open and available to the public)
- Must be non-income-producing
- Priority for the structural stabilization of threatened or endangered historic resources
- Facilities must be universally designed to accommodate all people regardless of race, color, national origin, age, or handicap.

Grant:

- Architectural & Historical: \$2,000-\$30,000; 50/50 match (70/30 match for surveys)
- Archaeological: \$2,000-\$50,000; 50/50 match (70/30 match for surveys)
- Acquisition & Development: \$2,000-\$50,000; 50/50 match
- Awarded funds are released on a reimbursement basis.

Recreational Trails Program (RTP)

The Recreational Trails Program is federally-funded program through the Federal Highway Administration (FHWA), and administered on a state-wide basis through the Indiana DNR's Division of Outdoor Recreation. The purpose of this program is to develop multi-use recreational trail projects throughout Indiana to educate and expose residents to the many natural assets found throughout the state. Outlined below are some of the primary considerations for RTP funding.

Eligible Recipients:

- Governmental agencies
- Not-for-profit organizations with 501(c)(3) tax exempt status

Requirements:

- All facilities must be universally designed to accommodate all people regardless of race, color, national origin, age, or handicap.
- Trails developed with RTP funds must be developed off of all regularly maintained roadways, including sidewalks and alleys.

Eligible Projects:

- Both motorized and non-motorized multi-use recreational trail projects.
- Development and rehabilitation of trailside, trailhead facilities, and trail linkages
- Construction of multi-use trails
- Acquisition of easement or property for trails
- Operation of educational programs to promote safety and environmental protection related to trails
- Providing stream and river access sites
- Construction of bridges, boardwalks, and crossings
- Signage
- Building of sanitary facilities and other support facilities (e.g. water fountains, etc.)
- Maintenance and restoration of trails
- Purchase and lease of trail construction and maintenance equipment
- Education, including publications, monitoring and patrol programs, and trail-related training

Grant:

- \$10,000-\$150,000 (80% match)
- Applicant must have at least 20% of the total project cost available, which can include the donated value of land, cash, labor, equipment, materials, tax sources, bond issues, Community Development Funds, Farmers Home Administration Loans, or force account contributions.
- Awarded funds are released on a reimbursement basis.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund is federally-funded program through the National Park Service, and administered on a state-wide basis through the Indiana DNR's Division of Outdoor Recreation. Since Congress passed this legislation in 1965, Indiana has received approximately \$75 million for the acquisition of public land. This has resulted in over 30,000 acres of land being acquired for public outdoor recreational use and conservation. Outlined below are some of the primary considerations for LWCF funding.

Eligible Recipients:

- Local Park and Recreation Boards with current 5-Year Master Plans for parks and recreation on file approved by the Division of Outdoor Recreation

Requirements:

- Land acquisition or development may not begin until final approval is received, at which point all land to be developed must be controlled by the park board through direct ownership.
- Local matching money, including donations, may not take place until after funding/application approval
- Facilities must be universally designed to accommodate all people regardless of race, color, national origin, age, or handicap
- Other DNR divisions may be involved with grant application review: Division of Water (Construction in the floodway or alteration of a lake shoreline must have a permit); Division of Land Acquisition; Division of Historic Preservation and Archaeology; Division of Forestry, Fish and Wildlife, and Nature Preserves

Eligible Projects:

- New parks or additions to existing parks
- Park or natural area acquisitions
- Picnic areas
- Sports and playfields (playgrounds ballfields, courts, golf courses, etc.)

- Water oriented facilities for boating, swimming, and access to lakes, rivers, and streams
- Natural areas and interpretive facilities
- Campgrounds
- Fishing and hunting areas
- Winter sports facilities
- Nature centers
- Amphitheaters and bandstands
- Parks adjacent to schools for mutual use
- Outdoor natural habitat zoo facilities
- Support facilities - roads, restrooms, utilities, park maintenance buildings (only eligible when accompanied by outdoor recreation development within the project)
- Renovation projects (Repairs associated with routine maintenance, or renovation caused by vandalism or poor maintenance are not eligible)

Grant:

- \$10,000-\$200,000 (50 percent match)
- Applicant must provide at least 50 percent of the total project cost, which can include the donated value of land, cash, labor, equipment, materials, appropriations, tax levies, bond issues, force account labor, gifts, Community Development Act Funds, and Farmers Home Administration Loans.
- Awarded funds are released on a reimbursement basis.

Hometown Indiana Grant

In 1998 the Indiana General Assembly made a one-time appropriation of funding for the new Hometown Indiana matching grants program that was designed to assist communities with projects in parkland acquisition and development, urban forestry, and historic preservation and archaeology. By statute, appropriated Hometown funds are divided according to the following ratios: 70 percent for park projects, 10 percent for forestry projects, and 20 percent for preservation projects. NR's Division of Outdoor Recreation administers the parkland component of the program, while the Division of Forestry administers the urban forestry component.

The intention of the preservation component of Hometown Indiana is to save significant historic and cultural resources that are seriously threatened or endangered. Depending on the State financial resources available, this program operates on a biannual basis. The administrative requirements and guidelines of Hometown Indiana's preservation component are based on those of the HPF Program for the Archaeological and Acquisition and Development categories.

Requirements:

- Listed on the Indiana Register of Historic Sites and Structures or the National Register of Historic Places
- Municipal government entities
- Educational institutions
- Not-for-profit organizations with 501(c)(3) tax exempt status

Grant:

- Biannual 50 percent -50 percent matching grant up to \$100,000

A.2c INDIANA LANDMARKS

Southern Regional Office - Willey-Allhands House
 115 West Chestnut Street
 Jeffersonville, IN 47130
 Phone: (812) 284-4534
 Fax: (812) 285-9923
www.indianalandmarks.org

A group of Indianapolis civic leaders created Indiana Landmarks, formerly known as Historic Landmarks Foundation of Indiana (HLFI), in 1960 in response to the alarming loss of historic properties in the city. The organization established by those volunteers is now comprised of over 10,000 members, and ranks as the largest private statewide preservation group in the United States. In addition to the Indianapolis headquarters, there are nine regional offices throughout the state. Indiana Landmarks

educates the public on the importance of historic preservation, and assists individuals, organizations, and communities in preserving, adapting and revitalizing Indiana's endangered landmarks. The organization also restores buildings, advocates preservation, and provides financial support for preservation efforts.

Indiana Preservation Grants

<http://www.indianalandmarks.org/resources/pages/grantsloans.aspx>

Description:

These grants are available to nonprofit organizations for professional architectural and engineering feasibility studies, preservation consulting services, as well as organizational development and fundraising projects. The grants may not be used for physical restoration work. The program provides a four-to-one matching basis with Indiana Landmarks providing four dollars for each local dollar.

Requirements:

- Available to non-profit organization
- Minimum of a 20 percent match is required

Grant:

- 80 percent of the project cost up to \$2500

Statewide Revolving Loans

Nonprofit preservation organizations outside Marion County may apply for loans from Indiana Landmarks' Statewide Revolving Loan Fund to buy and/or restore endangered historic properties. The recipient of loan funds must attach Indiana Landmarks' protective covenant to the property deed. Indiana Landmarks' Statewide Revolving Loans have a \$60,000 limit and low interest terms for the first three years. In making loan decisions, Indiana Landmarks gives special consideration to projects that will save buildings listed in or eligible for the

National Register of Historic Places or located in a National or State Register historic district.

Requirements:

- Available to non-profit organizations
- Indiana Landmarks' protective covenant must be attached to the property deed.

A.2d INDIANA HUMANITIES COUNCIL (IHC)

1500 North Delaware Street

Indianapolis, IN 46202

Phone: (317) 638-1500 or 1-800-675-8897

Fax: (317) 634-9503

www.indianahumanities.org/

The Indiana Humanities Council strengthens communities through targeted initiatives in leadership, education, and culture. The organization promotes the humanities, including literature, history, philosophy, languages and related disciplines through project grants to Indiana non-profit institutions.

Historic Preservation Education Grant

The Historic Preservation Education Grant program is co-sponsored by IHC and Indiana Landmarks, and made possible in part by the National Endowment for the Humanities. These grants are awarded to support educational programs related to historic properties in Indiana.

Eligible projects include lectures, workshops, conferences, the production of audiovisual materials, and heritage or cultural tourism programs. Educational print materials such as walking tour brochures, guides to historic homes, and curriculum units constitute eligible projects as well. One-third of the grants will be reserved for qualified projects that are aimed at developing K-12 curriculum materials.

Requirement:

- Not-for-profit organizations with 501(c)(3) tax exempt status
- Used to educate the public about the principles and importance of historic preservation

Grant:

- Up to \$2,000

A.3 ALTERNATIVE FUNDING OPPORTUNITIES**A.3a Public/ Private Partnerships**

Public/private partnerships combine the capabilities of the public sector with the advantages of the private sector. Government agencies can typically borrow money at a lower rate than is available in the normal marketplace because the income stream from municipal bonds are tax-free to the investor (lender). The county agency can aid a developer in other ways as well. Examples include waiving or reducing exactions and other development fees, extending water and sewer lines as appropriate, and reducing required on-site facilities such as parking.

Private developers have advantages as well. Often, private entities can build projects less expensively than public agencies. This is usually related to fewer requirements for the contractor of private projects and thereby lower general services-related activities, such as bonding costs. There are many variations of public/private partnerships, but the common principle underlying any of them is that by working together, more can be accomplished than by working separately.

A.3b Revolving Loan Fund

The Town of Utica could create a pool of funds for loans or grants for rehabilitation of historic resources. Tax-exempt bond financing has been used to provide grants or loans to nonprofit

organizations to rehabilitate historic properties. Loans may be used for either residential or commercial properties, at low to no interest. Grants are typically used for exterior rehabilitation, preservation, and the restoration of historic properties which are publicly- or privately-owned.

The inclusion of capital appropriations or funding in the Town of Utica's annual budget for preservation incentives or programs can effectively ensure that preservation projects become part of the long-term capital budget. This could include money budgeted for the public purchase of historic resources that cannot be saved by private efforts alone. It is also important to take into consideration funding for the maintenance of significant public and private historic resources, to effectively ensure historic resources such as the lime kilns are not only preserved, but also maintained over time.

A.4 ADDITIONAL OPPORTUNITIES / PARTNERS

This section summarizes the various methods and monetary resources available for implementing the recommendations described in this document. Restoring historic resources not only improves the image and integrity of the area but can also increase income by allowing for increased property value, retail sales and tax incentives. To carry out specific preservation activities there is often a need for financial assistance. There are as many ways to raise money, as there are projects; whether the project involves restoring a neighborhood, revitalizing a downtown area or preserving rural resources, public and or private funds can often be found. It must be recognized that the funding capabilities of the agencies involved in Ohio River Bridges Project may not support implementation of all strategies discussed in this Preservation Plan. However, the Preservation Plan does provide goals and strategies to pursue funding. Priorities will need to be made and budgets consulted.

A.4a CLARK COUNTY PLANNING, ZONING, & BUILDING COMMISSION

501 East Court Avenue, Room 300
 Jeffersonville, IN 47130
 Phone (812) 285-6287

A.4b JEFF-CLARK PRESERVATION, INC.

629 E. Maple Street
 Jeffersonville, IN 47130-3939

A.4c INDIANA'S FOREST LEGACY PROGRAM

Indiana Department of Natural Resources: Division of Forestry
<http://www.in.gov/dnr/forestry/index.html>

Indiana's Forest Legacy Program will identify environmentally important forests and protect them by purchasing the development rights from willing sellers. The owners retain all other rights, including the right to harvest timber and sell or bequest the remaining rights.

Requirements:

Two broad categories of factors were considered when choosing Forest Legacy Areas: natural resource values and demographic pressures. The State Forest Stewardship Coordinating Committee delineated Forest Legacy Areas in Indiana where they felt acquisition of development rights would be most effective in protecting threatened forest values (this includes Clark County). The Forest Legacy Program is in favor of sound, well-thought-out development that compliments the maintenance of vital, productive forests. Parcels should also be more than approximately 10 acres (large enough to be sustainable as a forest), but priority may be given to very large forests (250+ acres).

A.4d THE NATURE CONSERVANCY

Indiana Field Office
 620 E. Ohio Street
 Indianapolis, IN 46202
 Phone: (317) 951-8818
 Fax: (317) 917-2478
www.nature.org

The Nature Conservancy's mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. They work in all 50 states and in several other countries worldwide. They use a method called Conservation by Design, a systematic approach that determines where to work, what to conserve, what strategies they should use and how effective they have been. Their website offers conservation information, and the Nature Conservancy sometimes participates in holding voluntary conservation easement donations from landowners who want to protect their land from development.

A.4e TRUST FOR PUBLIC LAND (TPL)

www.tpl.org

The Trust for Public Land (TPL) serves as an independent agent that often buys land from willing landowners and then transfers it to public agencies, land trusts, or other groups for protection and conservation. In some instances, the TPL will protect land through conservation easements, which restrict development but permit traditional uses such as farming or recreational uses. These land transactions result in the creation of parks, playgrounds, or other natural/recreational areas to protect water quality, preserve family farms, manage growth, and ensure parkland for growing populations.

The TPL also helps design, promote and implement public funding measures that dedicate new public funds for parks and land conservation. The organization accomplishes this by assisting states, counties, and municipalities, create and pass legislation, or mount ballot measures to generate new funds for conservation. Also, the TPL's national research team provides analysis and recommends funding strategies that result in measures aligned with public priorities.

A.4f INDIANA HISTORICAL BUREAU

State Historical Marker Program Process

Dani Pfaff, Marker Program Manager

317-232-6276

www.in.gov/history/index.htm

A goal of the program is to increase the diversity of marker topics so those reading Indiana State markers realize Indiana has been shaped by a variety of events and individuals that have created a unique history worth celebrating. Markers reflect this rich political, social, cultural, economic, intellectual, and scientific history of the state. In 1998, a searchable database containing all Indiana state historical markers was made available on the Historical Bureau Web site and is updated regularly. The database contains the marker's county, title, text, credit line, and location and is searchable in all of those fields. Also available on the web site are examples of applications with copies of some materials used to document the information in the text.

Deadlines and Timing:

Applications are received for an established annual deadline in September. For each deadline, 18 to 22 markers are generally processed.

A.5 LIST OF RESOURCES

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RATIO Architects, Inc.
107 South Pennsylvania Street
Suite 100
Indianapolis, Indiana 46204
ph: 317.633.4040
fx: 317.633.4153

www.RATIOarchitects.com



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ARCHAEOLOGY · HISTORY · HISTORIC PRESERVATION

Charles D. Hockensmith
Archaeological Consultant /
Principal Investigator
305 Green Wilson Rd.
Frankfort, KY 40601

