

Documents Received
During the Bellefonte Alternative Sites Audit Trip
May 12-15, 2008

Attachment 1: Phipps Bend Site-Specific Information

Attachment 2: Hartsville Site-Specific Information

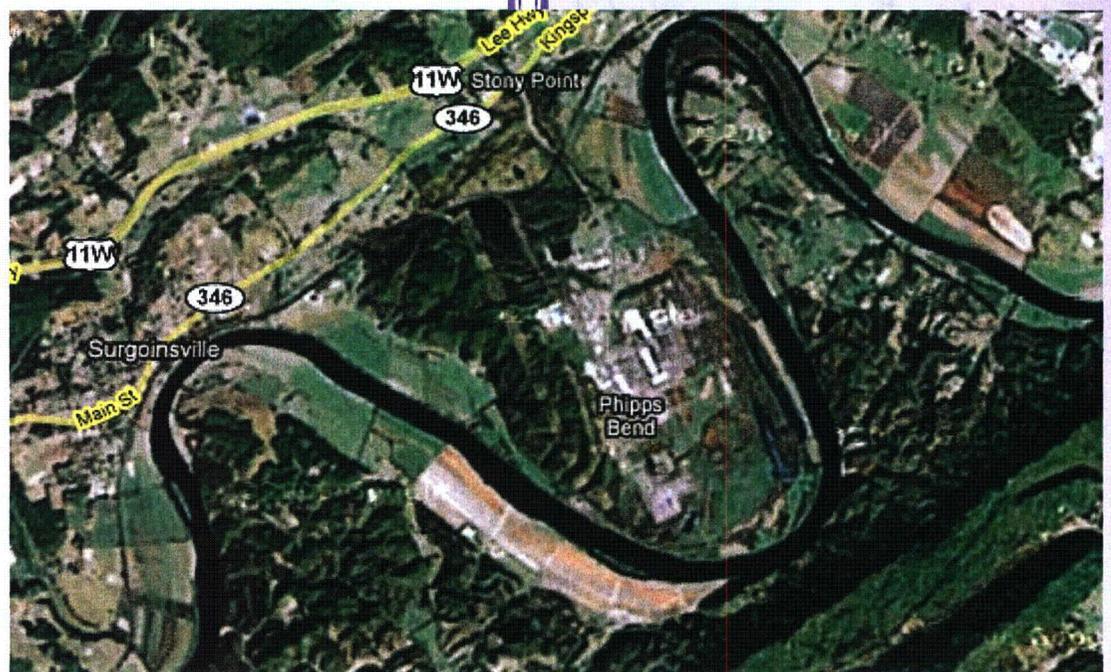
Attachment 3: Yellow Creek Site-Specific Information

Attachment 4: Tri-State Commerce Park Demographics Information

Attachment 5: Murphy Hill Site-Specific Information

2008

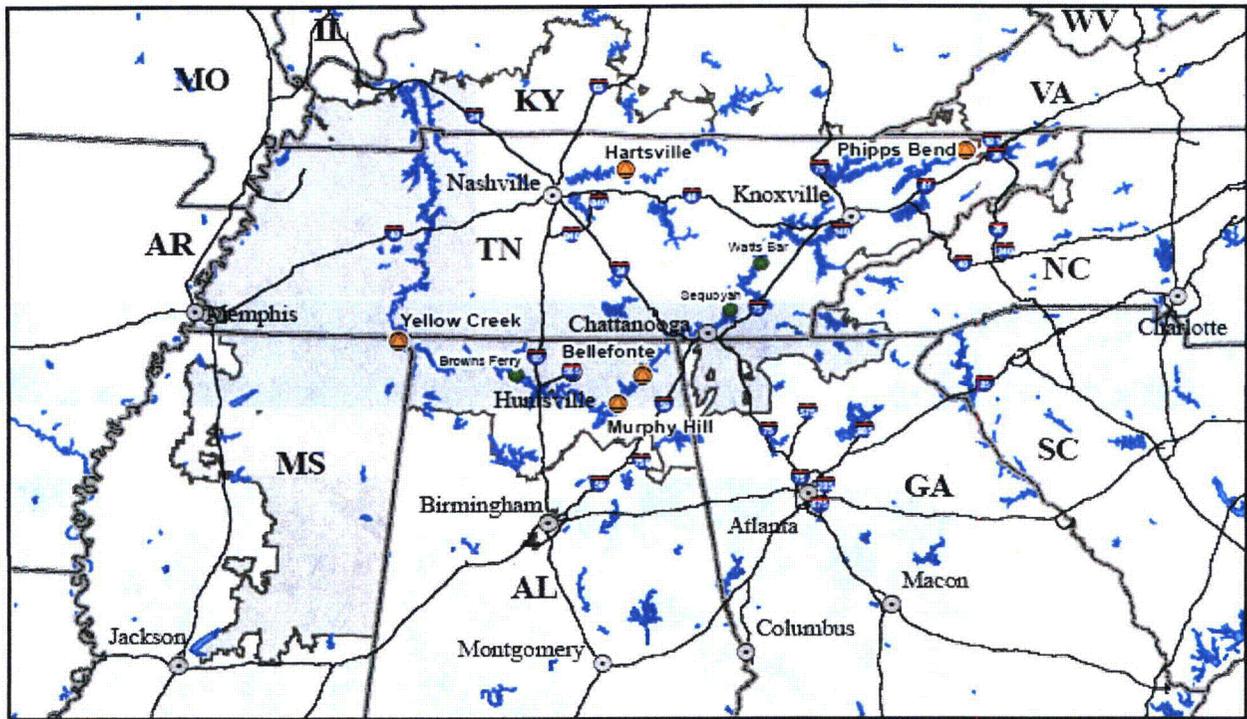
Phipps Bend Site-Specific Information



NRC Site Audit

NuStart/TVA/Enercon

3/31/2008



Alternative Site Locations

-  Candidate Nuclear Sites
-  TVA Existing Nuclear Plants
-  TVA Power Service Area



Summary of Screening Process

TVA evaluated and selected five sites as candidate sites in their ROI for potential siting of a new nuclear facility. Each candidate site meets the eight minimum NUREG-1555 criteria for site selection. The TVA site-comparison process resulted in the choice of BLN as the proposed site for further study.

General description of the alternative brownfield and greenfield sites is in this section. Supporting documentation and additional information are included in individual criteria and site sections in this report. The comparison of data is summarized in the table below.

As discussed in Section 9.3.2.4.2 of the COLA, in addition to the Bellefonte site (BLN), other brownfield sites considered include the former Hartsville Nuclear Plant site (HVN), the former Phipps Bend Nuclear Plant site (PBN), and the former Yellow Creek Nuclear Plant site (YCN).

For each of the four brownfield sites, construction permits were applied for and obtained under the regulations and evaluation procedures of the period. Although nuclear plant construction was never completed at any of these sites, they offer many of the operating nuclear site advantages mentioned in the ER. In addition to the brownfield sites, one greenfield site, the Murphy Hill site (MH), was considered.

TVA ASE SUMMARY OF RESULTS

	BLN	HVN	PBN	YCN	MH
Safety & Health Criteria –					
Geologic Evaluation	5	5	5	5	5
Cooling System Suitability	5	5	5	5	5
Plant Safety Evaluation –					
Flooding Potential Evaluation	5	5	5	5	5
Accident Effects Evaluation –					
Population	4	4	4	4	5
Emergency Planning	5	5	5	5	4
Atmospheric Dispersion	4	5	5	5	4
Operational Effects Evaluation	5	5	5	5	5
Transportation Safety Evaluation –					
Cooling Tower Drift	4	5	5	5	4
Environmental Criteria –					
Proximity to Natural Areas	4	3	5	2	5
Construction-Related Effects on Aquatic Ecology	5	5	5	5	5
Construction-Related Effects on Terrestrial Ecology	5	5	5	5	5
Construction-Related Effects on Wetlands	5	5	5	5	5
Operations-Related Effects on Aquatic Ecology					
Thermal Discharge	4	4	2	5	4
Entrainment And Impingement Effects	5	5	5	4	5
Operations-Related Effects on Terrestrial Ecology					
Cooling Tower Drift	4	5	5	5	4
Socioeconomic Criteria –					
Construction-Related Effects	5	5	5	5	4
Highway Access During Construction	5	5	5	5	4
Operations-Related Effects	5	5	5	5	5
Environmental Justice Evaluation	5	5	5	5	5
Land Use	5	4	3	4	2
Cultural Resources	5	4	4	4	5
Engineering and Cost Related Criteria –					
Water Supply Cost	5	5	5	5	5
Transportation –					
Highway Access Cost	5	5	5	5	3
Rail Access Cost	5	3	5	3	2
Barge Access Cost	5	3	3	3	2
Transmission Access Cost	5	2	3	2	2
Site Preparation –					
Land Use And Ownership Assessment	5	3	3	2	2
Topographic Modifications	5	5	5	4	3
Flood Protection Cost	3	4	2	5	2
Cooling Water Cost	5	5	5	5	5
Total	142	134	134	132	121

1 =Least Suitable 5 = Most Suitable

Description of the Phipps Bend Nuclear Site

The former Phipps Bend Nuclear Plant site is located at river mile 120 on the Holston River in Hawkins County, Tennessee. It is located in an area of moderately high ridges with flood plains along the bank of the river; the region is dominated by a broken pattern of open valleys interrupted by steep, forested ridges. Site elevation varies from 1100 to 1260 ft. msl.

The PBN site consists of approximately 1284 ac., of which TVA has retained 102 ac. for transmission facilities. The remainder was sold and is now the Phipps Bend Industrial Park. The undeveloped portion of the park adjacent to the retained 102 ac. of TVA property is about 300 ac. In order to construct and operate a two-unit nuclear plant at the PBN site, TVA would need to reacquire portions of the industrial park with some degree of impact to existing industrial uses of the site. Construction of the units for PBN was cancelled in 1982.

POPULATION: Within the 6-mi. radius of the site are the towns of Church Hill to the northeast, with a population of approximately 6000 and Surgoinsville to the west, with a population of 1500. Phipps Bend is 65 mi. from Knoxville, Tennessee, and the population with a 50-mi. radius is estimated to be 1.1 million people. Transient populations in the area are primarily associated with camping and other activities associated with the Holston River.

METEOROLOGY: For atmospheric dispersion, meteorological conditions at a site are monitored and evaluated as part of determining suitability for siting of nuclear plants. The observation of temperature and wind conditions over time provides input into statistical models. The models can be used to help predict probable atmospheric dispersion of releases. Topographic conditions also influence extreme weather and temperature variations. Sites with better meteorological conditions are rated higher (e.g., limiting conditions affecting the transport and dispersion of plant emission would have a lower rating).

Assessment of the meteorological conditions at the Hartsville site did not indicate any limiting conditions.

ECOLOGY: TVA employs an Index of Biotic Integrity to assess environmental quality of free-flowing streams and some tailwater areas in the Tennessee River system, by applying ecologically based metrics to resident aquatic communities. TVA has a "fixed station" site at Holston River mile (HRM) 118, just downstream of the PBN site. This site was sampled yearly from 1990 to 1997 (with the exception of 1995), and has been sampled every other year beginning in 2001. This locality has consistently rated in the fair/good or good categories during recent sampling (2001 – 2007). This river supports a good warmwater fishery including largemouth, smallmouth, and spotted bass.

Several state- and federal-listed aquatic species are known from Hawkins County, Tennessee. The spotfin chub (federally listed as Threatened) is routinely collected at the HRM 118 IBI site and is likely present in the Holston River adjacent to the PBN site. None of the eight federally listed mussel species reported from Hawkins County have been collected from the main stem of

the Holston River in the vicinity of the Phipps Bend site. No state- or federal-listed aquatic species are known to occur on the Phipps Bend site itself. The Cumberland bean mussel and purple bean mussel are reported from Beech Creek, a tributary to the Holston River that enters the river at approximately river mile 109, but are not known to occur in the main stem Holston River.

The USFWS' list of threatened, endangered and candidate species for Hawkins County, Tennessee, consists of 12 animal species, including two mammal species, one bird, one fish, and eight mollusk species. The TVA Regional Natural Heritage database identified three federally listed terrestrial animal species that may occur on or adjacent to the Phipps Bend site. Of the three federally listed species potentially present, only the gray bat and bald eagle have been observed near the Phipps Bend site. No federally listed threatened or endangered plant species were known to occur on, or immediately adjacent to, the Phipps Bend site. No important wading bird colonies are reported within 3 mi. of the Phipps Bend site. Two state-listed terrestrial species (barn owl and Virginia rail) have been seen on the Phipps Bend site.

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Phipps Bend, located in the Southern Shale Valleys Ecoregion IV, a subdivision of the Ridge and Valley Ecoregion III occurs between the Blue Ridge Mountains on the east to the Cumberland Plateau on the west and is a relatively low lying region made up of roughly parallel ridges and valleys that were formed through extreme folding and faulting events in past geologic time. The Southern Shale Valleys consist of lowlands, rolling valleys and slopes and hilly areas dominated by shale materials. Small farms and rural residences occur throughout where land is used for grazing or farming tobacco, corn, or hay. Much of the area has been highly disturbed and partially cleared, leaving only a small portion of the site in woody vegetation.

A review of the Natural Heritage Database listed one plant occurrence (an historic record of Appalachian bugbane) within 5 mi. of Phipps Bend. A wider search of 10 mi. was conducted and an additional six species were found to occur within 10 mi. of the proposed alternative.

There are no known uncommon terrestrial plant communities or Federal-listed Threatened and Endangered species occurring in the vicinity of Phipps Bend. In addition, there are several state-listed plant species known to occur within 10 mi. of the project site, but a review of maps and knowledge of rare plants in the region indicates habitat for these species do not occur within or adjacent to the proposed area; therefore no significant impacts to these botanical resources are expected.

NATURAL AREAS: The Phipps Bend site has no natural areas within 3 mi. of the site.

WETLANDS: At the PBN site, there are approximately 11 ac. of emergent and forested wetlands. These wetlands are associated with a large 57-ac. open water complex in the floodplain of the Holston River along the eastern boundary of the survey area.

Stringent environmental laws regulate dewatering or filling wetlands. For purposes of this comparison, most potential construction areas are located sufficiently far away that it will be possible to avoid most wetlands. Thus, potential adverse impacts from dewatering or filling are expected to be avoided or minimized such that any potential impacts would be insignificant, and all sites are rated equally.

CULTURAL RESOURCES: East Tennessee has been an area of human occupation for the last 12,000 years. This includes five broad cultural periods: Paleo-Indian (11,000-8,000 BC), Archaic (8000-1600 BC), Woodland (1600 BC-AD 1000), Mississippian (AD 1000-1700), and Historic (AD 1700- to present). Prehistoric land use and settlement patterns vary during each period, but short- and long-term habitation sites are generally located on flood plains and alluvial terraces along rivers and tributaries. Specialized campsites tend to be located on older alluvial terraces and in the uplands. In East Tennessee, during the 17th and 18th centuries, Europeans and Native Americans began interacting through the fur trading industry. Euro-American settlement increased in the early 19th century as the Cherokee were forced to give up their land. Hawkins County was originally established as a North Carolina county on January 6, 1787. At this time, the county consisted of what are now Hancock, Grainger, Jefferson, Knox, Roane, Meigs, and Hamilton counties. Development around the Hawkins Court House soon became known as the town of Rogersville. In 1858 the East Tennessee and Virginia Railroad used slave labor to lay the first tracks through an area called Bulls Gap, which is located near Rogersville. During the Civil War the strategic location of the tracks made Bulls Gap the frequent scene of fighting between Union and Confederate forces. After the war the railroad dominated the economic life of Bulls Gap. From the 1840s through the 1870s the marble industry was developed in Hawkins County, and the area became famous for its pink and red variegated marble. Marble from Hawkins County was used in the Washington Monument in Washington, D.C., as well as the balustrades and stairways of the Capitol. Today the principal sources of farm income are beef cattle and burley tobacco. In 1791, the town of Rogersville printed Tennessee's first newspaper, *The Knoxville Gazette*.

Prior to construction of the Phipps Bend Nuclear Plant, archaeological surveys were conducted within the project location. These surveys identified twenty-three archaeological resources. Seven sites that could be adversely impacted within the project area were evaluated. In consultation with the Tennessee State Historic Preservation Officer (TN-SHPO), TVA recommended four of the seven sites as potentially eligible for the National Register of Historic Places (NRHP) and the remaining nineteen sites as ineligible for the NRHP. Furthermore, TVA recommended a determination of no adverse effect to the four sites due to avoidance. The TN-SHPO concurred with all of these determinations. It is unknown how many potentially eligible

or eligible sites still exist within the project area. No historic/architectural resources were identified prior to construction of the Phipps Bend Nuclear Plant; however no systematic historic/architectural survey has ever been conducted of the project area. Ten historic properties are listed on the National Register of Historic Places (NRHP) in Hawkins County, none of which are within the project APE or in the immediate vicinity.

TRANSPORTATION: Sites are compared with respect to costs for providing access by highway, rail, and barge. Thus, three transportation criteria are considered. The purpose of the first transportation criterion is to rate sites based on the length of additional or new highway construction required to provide car and truck access.

Highway access for the Phipps Bend site was previously upgraded in anticipation of construction. While some additional highway upgrades may be necessary to support construction and operation of new nuclear power plants, no significant differential highway development costs are expected.

Rail access is available to the PBN site; a barge facility would have to be constructed.

TRANSMISSION: The PBN site would require 139 mi. of both 500-kV and 161-kV transmission line to be constructed on 1464 ac. of transmission ROW. It would also require additional assessment for threatened and endangered species, cultural resources, land use, and potential impacts to water resources.

GEOLOGY: The PBN site lies within the Southern Appalachian Tectonic Province. For the eastern area sites in this province, the maximum earthquake was the 1897 Giles County, Virginia, earthquake, which had a reported intensity of MM VIII. The maximum acceleration for intensities of this level was estimated at 0.18 g for safe shutdown earthquakes.

Phipps Bend Site Figures

Phipps Bend Site Vicinity Map—Prepared by TVA, William H. Keeler III

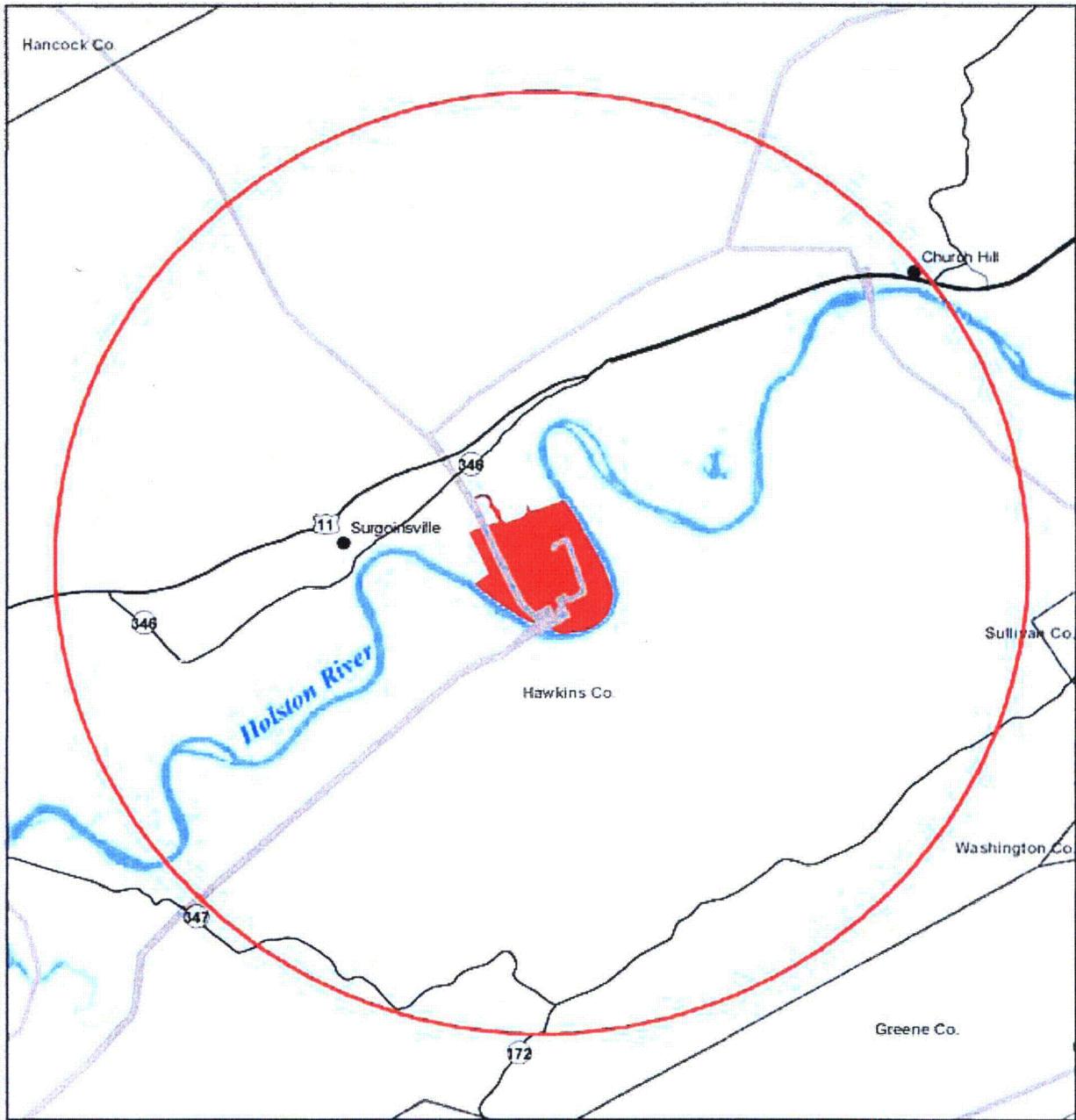
Phipps Bend Site Oblique Aerial Photo—From TVA web site, www.tva.com.

Phipps Bend Site Land Ownership Map with Retained and Sold Property Boundaries— Prepared by TVA, William H. Keeler III

Phipps Bend Site Land Ownership Status Overlay on Topographic Map— Prepared by TVA, William H. Keeler III

Phipps Bend Site Aerial Photo with Site Boundary— Prepared by TVA, William H. Keeler III

Phipps Bend Site Map of Existing Facilities and Available Areas, 3/21/06—Obtained from Lynn Lawson, Industrial Developer, Hawkins County, Tennessee; prepared by Mattern & Craig, Consulting Engineers, Johnson City, Tennessee



Phipps Bend Site 6-Mile Vicinity

-  Transmission ROW
-  State Highways
-  Phipps Bend Site Boundary
-  Reservoir

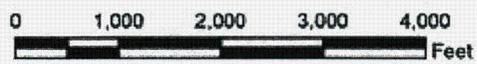


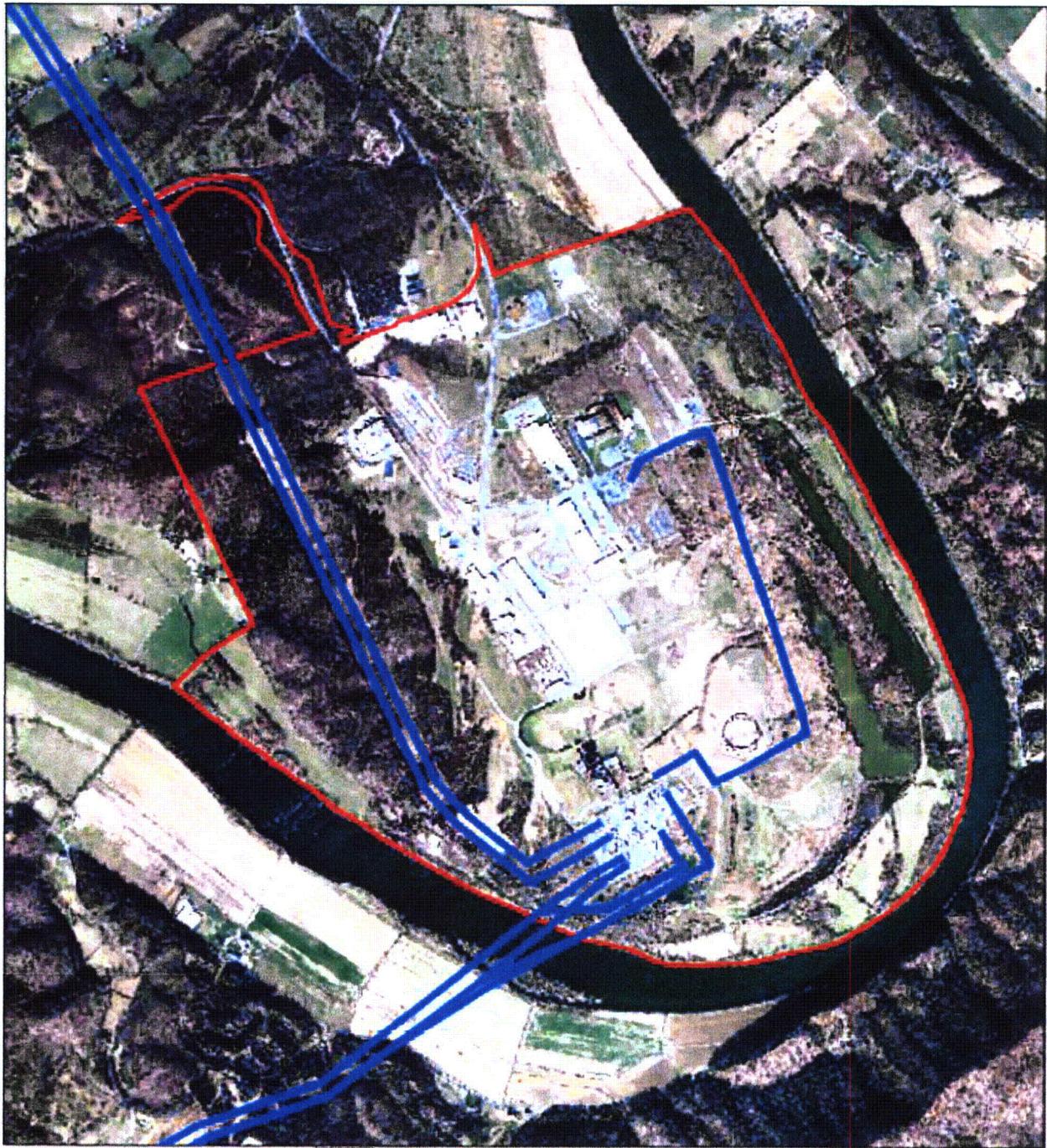




**Phipps Bend Site
Land Ownership Status**

- Retained (102 acres)
- Sold (1182 acres)

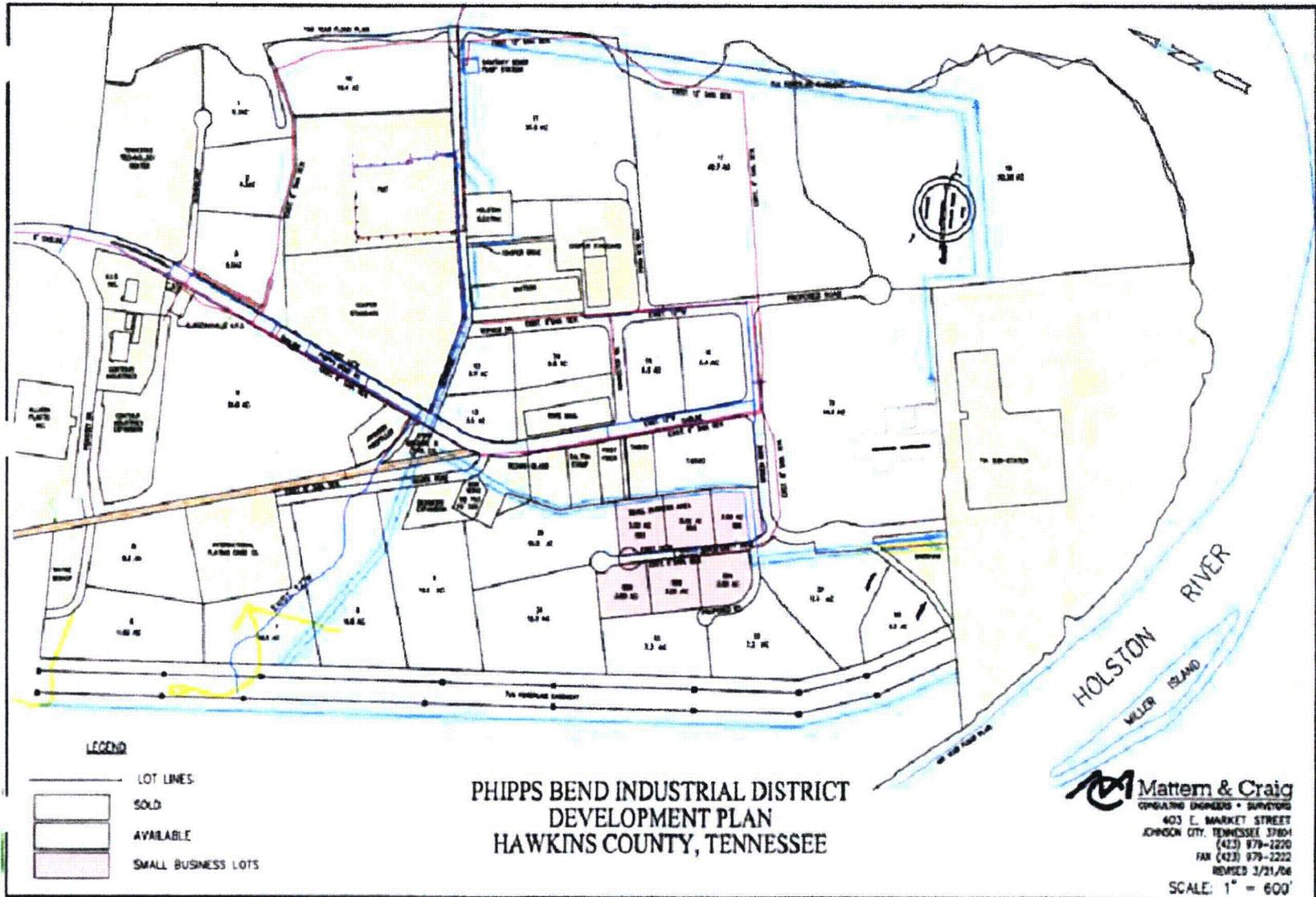




Phipps Bend Site

- Transmission ROW
- Site Boundary







PHIPPS BEND INDUSTRIAL DISTRICT DEVELOPMENT PLAN HAWKINS COUNTY, TENNESSEE

LEGEND

- LOTS SOLD
- LOTS AVAILABLE (410± ACRES)
- SMALL BUSINESS LOTS (16± ACRES)

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