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Site Assessment Report

Trimble County Unit 2
LG&E Energy Corporation
Trimble County, Kentucky

Submitted Pursuant to KRS 278

Submitted by:
LG&E Energy Corporation
Louisville, Kentucky

November 2004

Table of Contents

Table of Contents (Continued)
Tables

Figures

Table of Contents (Continued)
Figures (Continued)

1.0 Introduction

The Trimble County Station (Station) site is located in Bedford, Kentucky along the Ohio River, as shown in Figures 1-1 and 1-2. The property was initially planned for two 500 MW units and two 675 MW units. The existing facility includes a 500 MW coal fired unit (Unit 1) and six simple cycle 150 MW combustion turbines. The Unit 1 design included common facility provisions for an additional 500 MW. The proposed Trimble County Unit 2 Project (Project) will provide 750 MW of additional capacity.

Pursuant to Kentucky Revised Statute 278, any utility proposing to construct an electric generating facility, and any person proposing to construct a merchant electric generating facility, shall file a site assessment report with the Kentucky State Board on Electric Generation and Transmission Siting. This Trimble County Unit 2 Site Assessment Report is being submitted under the KRS 278 requirements.

Also in support of Project development and under separate cover, LG&E Energy will apply to the Kentucky Division for Air Quality under the Clean Air Act for a revised air permit, which is expected to be issued in 2005. The company will also file for a general construction storm water permit with the Kentucky Department of Environmental Protection, Division of Water, prior to construction activities. In addition, the company will modify the current KPDES permit to account for the new Unit 2 flows prior to unit start-up.

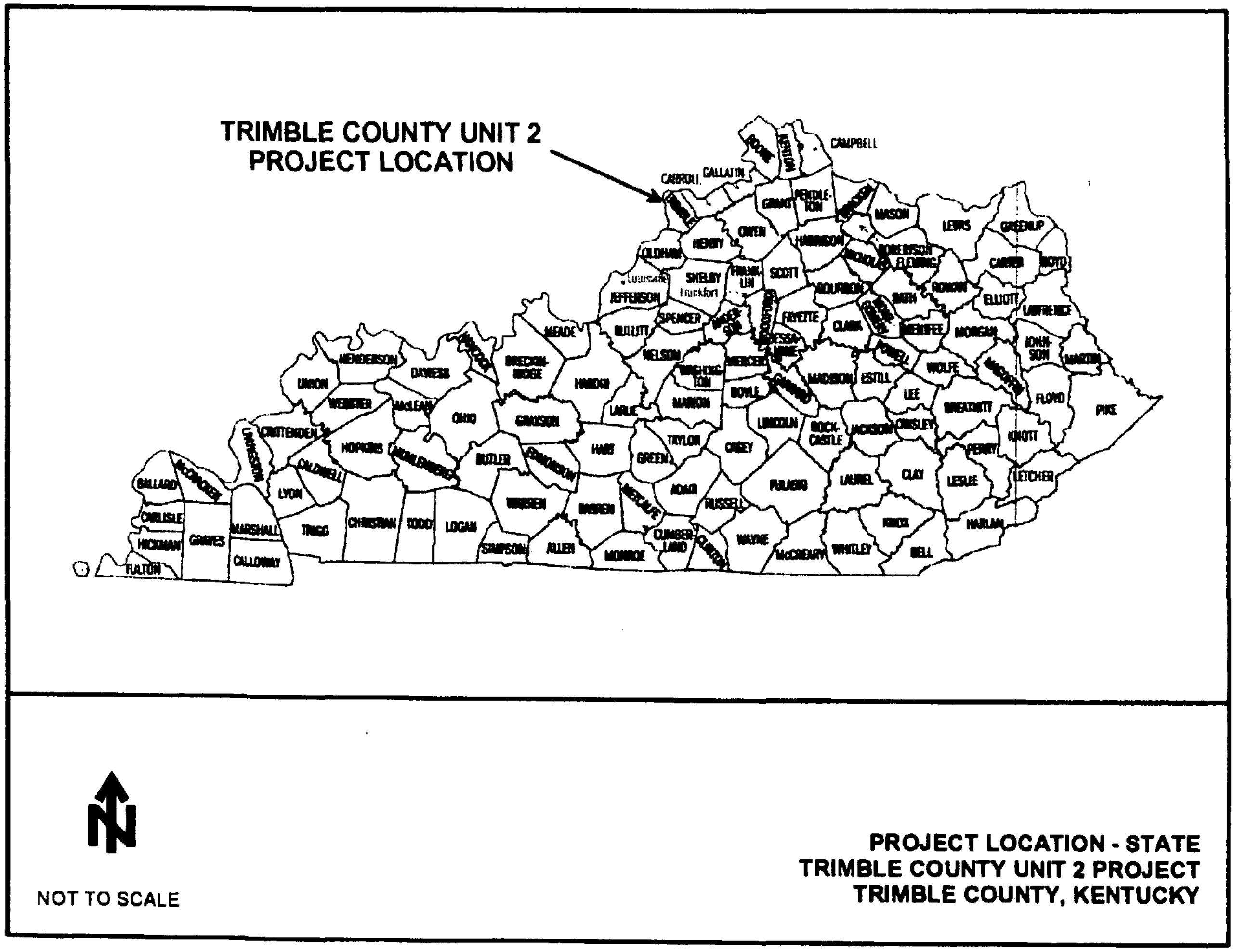


Figure 1-1
Statewide Project Location

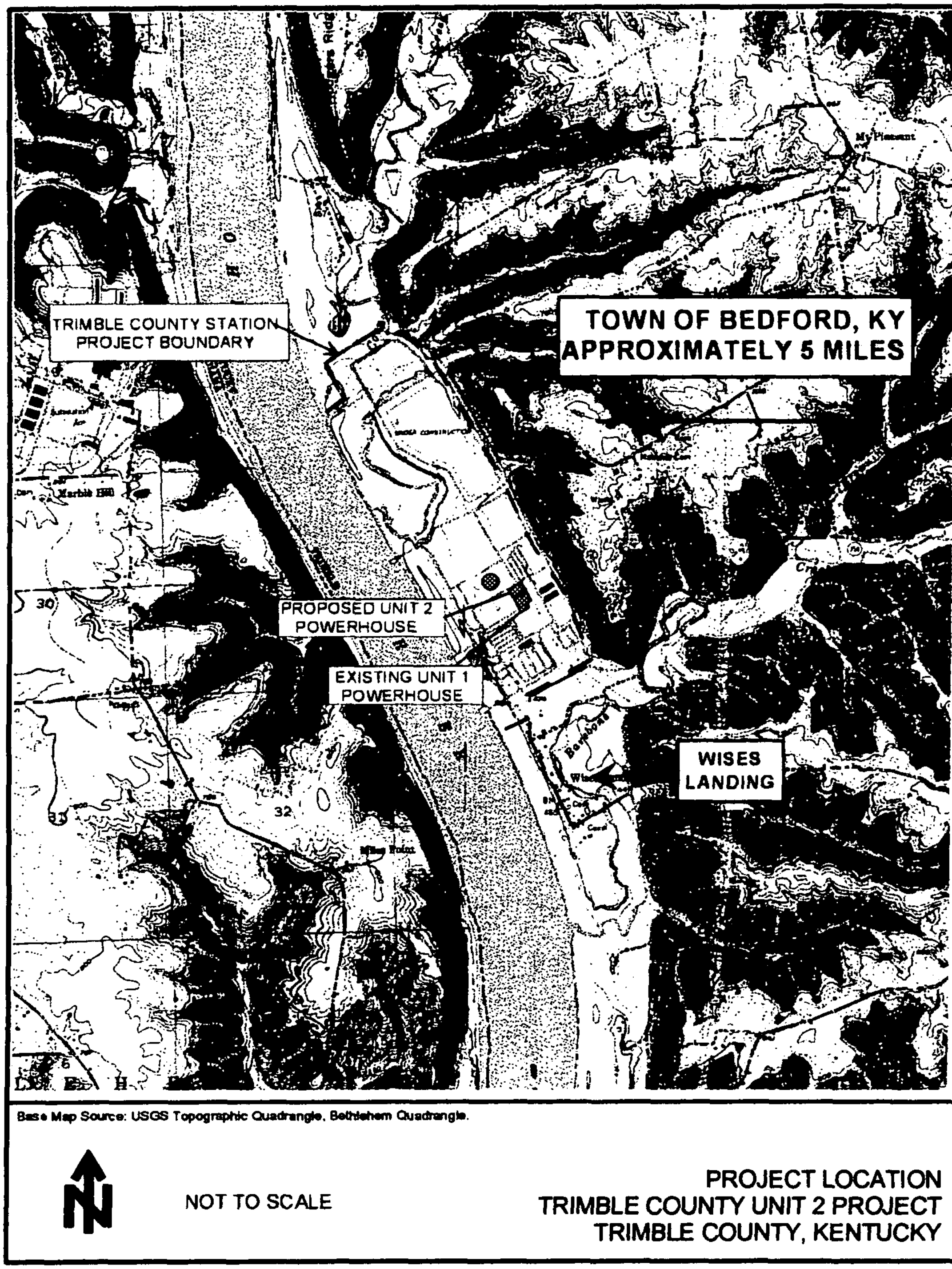


Figure 1-2
Local Project Location Map

2.0 Project Description

The Trimble County Unit 2 Project (Project) will include a 750 MW boiler and associated steam turbine generator. The building structures that will house these equipment packages are indicated on Figures 2-1 and 2-2. The Project is currently designed to include selective catalytic reduction (SCR), bag house, wet limestone scrubber, and a wet electrostatic precipitator (ESP) for air quality control. The maximum height of the proposed Project structures will be approximately 285 feet, less than the height of existing structures on the site.

The existing cooling tower was designed for two 500 MW coal units. Since the Project includes a 750 MW boiler instead of the originally planned 500 MW boiler, additional cooling will be required and will be provided by a new mechanical draft-cooling tower. The existing hyperbolic cooling tower will serve the proposed Project only. The new mechanical draft-cooling tower will provide the necessary cooling for the existing Unit 1. There are no plans to build a second hyperbolic cooling tower.

2.1 Surrounding Land Use

The Trimble County Station (Station) site is situated on the Ohio River, approximately 5.6 miles west of the Town of Bedford, Kentucky. In general, Trimble County is composed predominantly of rural areas. The areas surrounding the plant include scattered residences, agricultural land, and wooded areas. A residential community referred to as Wises Landing (shown on Figure 1-2) is located south of the Trimble County Station on the south side of Highway 754. These residences within the Wises Landing community represent the nearest residences to the Project.

The Project site is bordered to the west by the Ohio River, to the north by agricultural land, and to the east by a steep, wooded hillside. The surrounding areas are predominantly undeveloped and are rural in nature.

2.2 Legal Boundaries

The project site is located within a tract of land lying along the waters of the Ohio River between Conners Ridge Road and Kentucky Highway 754 in Trimble County, Kentucky. A complete, legal description of the property is provided in Appendix A of this report.

2.3 Access Control

Access to the site is currently controlled with security fencing around the perimeter of the Station site and manned security gates for entry into the site. The existing control facilities will remain intact and will be used during construction and operation of the Project.

2.4 Location of Buildings

The Station site layout, including the existing structures, is shown in Figure 2-1. A conceptual site plan for the proposed Project expansion is provided in Figure 2-2. These figures show relative locations of buildings onsite.

2.5 Roadways and Barge Access

Access to the Project will be via Highway 1838, which is due west of Bedford, Kentucky. Highway 1838 is a two lane, non-divided highway and provides direct access to the site from both the north and south. Traffic access to Highway 1838 will primarily be from Highway 754 out of Bedford. Secondary access to Highway 1838 will be from the north, via Highway 625.

U.S. Highway 421 and U.S. Highway 42 are the main highways that accommodate travel through Trimble County and an interchange with Highway 754 facilitates access to the plant. According to the Kentucky Transportation Cabinet's Department of Highways, existing traffic counts on this section of Highway 1838 are approximately 725 vehicles per day, with an hourly peak volume of 79 vehicles per hour. Highway 1838 is designed for 3,200 vehicles per hour according to the Transportation Research Board. The plant is located to the west of Highway 1838 and there are two existing plant access roads (Gates 1 & 3) that connect with Highway 1838. There is also one access road (Gate 2) that connects to Highway 754. In addition, there are three access roads from Highway 1838 to three parking lots which are designated for construction craft parking. Consequently, the existing roads will adequately accommodate both construction and plant traffic.

Barge access to the site is via the Ohio River along the Indiana/Kentucky border. It is anticipated that coal and limestone will be delivered by barge. Material deliveries for the construction of the Project will be delivered by truck and heavy/large equipment will be delivered by barge.

2.6 Utilities

The Project will utilize existing utilities, including phone, water, and waste water services. A description of each service is provided below.

Phones. The existing system will be modified for the Project's permanent requirements. Contractors will be responsible for their own phone system during construction.

Water. During construction, it will be the contractor's responsibility to provide its own potable and construction water as well as sewage treatment and treated water discharge. It is anticipated that the contractors will be able to source these services from existing facilities. The permanent systems will be via modifications to existing systems. No modifications to the Station's existing water intake structure or distribution systems will be required because the facilities were originally sized to accommodate two units.

Waste Water. Contractors will be responsible for proper control/disposal of waste water during construction. Permanent systems will include a new oil/water separator and interconnections/extensions of existing systems to maintain a "zero-discharge" facility.

2.7 Compliance with Setback Requirements

The Project will utilize the existing stack for Unit 2, as it was originally designed to support two units. As such, there are no plans to construct a new exhaust stack. Furthermore, the existing stack is in compliance with the setback requirements described in KRS 278.704. Specifically, the existing stack is located more than 1,000 feet from the nearest property boundary and more than 2,000 feet from the nearest residential boundary.

In addition, based on the information provided, there are no local setback requirements that apply to the Project.

3.0 Scenic Compatibility

Pursuant to KRS 278, the scenic compatibility of a new power plant is to be assessed prior to the construction or expansion of any new or existing power plant. The objective of the assessment is to evaluate the potential visual or contextual impacts of the project on adjacent environments being used by inhabitants or visitors of those adjacent areas.

The scenic compatibility of the Trimble County Unit 2 Project (Project) with the surrounding area was evaluated through a visual assessment. The existing and proposed facilities that will affect the scenic compatibility, the methods used in conducting the visual assessment, and the assessment results are described herein.

3.1 Project Setting

The following sections describe the Trimble County Station's (Station) major existing structures which influence the local visual setting, the major structural modifications associated with the Project which could potentially affect the Station's visual setting, local terrain features and local roadways.

3.1.1 Key Existing Structural Features

The existing Station is located on a 650-acre site along the Ohio River in Trimble County, Kentucky. The Station is located at an approximate elevation of 475 feet mean sea level (msl). The Project will not increase the land area of the site, but will be a facility expansion on the existing site.

The tallest (and most visually dominant) existing structures on the site are the hyperbolic cooling tower (508 feet high) and the stack (760 feet high), both of which have a base elevation of 475 feet msl. Therefore, the top (and thus, the highest visual point) of the stack is at an elevation of 1,235 feet msl while the top of the existing cooling tower is at an elevation of 983 feet msl.

In addition to the existing cooling tower and stack, peripheral facilities at the Station include material handling equipment, equipment buildings, and treatment facilities. Surrounding the Station are ash and sludge storage ponds as well as construction laydown areas. A dedicated natural wildlife area has been set aside on the northwest portion of the site adjacent to the Ohio River.

3.1.2 Proposed Modifications to Station Structures

No proposed improvements are planned to extend above the existing structures. The Project's major equipment will include a 750 MW boiler and an associated steam turbine generator. The building structures that will house these equipment packages are indicated on the conceptual site plan drawing (Figure 2-2 and Figure 3-1) as Structures 2 and 1, respectively. The proposed air quality components, SCR, bag house, wet limestone scrubber, and wet ESP are indicated as Structures 3, 10, 5 and 12 on the drawings, respectively. For the purposes of the visual assessment, the SCR structure was considered an extension of the new boiler building. As shown in Figure 3-1, the maximum height of these structures will be 285 feet, less than the height of existing structures on the site. As previously mentioned, the existing exhaust stack will be utilized for the Project and therefore a new stack structure will not be required.

The existing hyperbolic cooling tower was originally designed for two 500 MW coal units and there are no plans to build a second hyperbolic cooling tower. Since Unit 2 includes a 750 MW boiler, additional cooling will be provided by a new mechanical draft-cooling tower. The existing hyperbolic cooling tower (508 ft in height) will provide all the necessary cooling for Unit 2 and the new mechanical draft cooling tower (approximately 45 ft in height) will provide all the necessary cooling for the existing Unit 1. As such, the cooling towers will be individually dedicated to the respective Units. Consideration was given to the additional exhaust plume from the new cooling tower, although much of this plume may be dissipated by the time it reaches the height of the current plume from the existing cooling tower and stack.

3.1.3 Local Roadways

Access to the Trimble County Station will be via Highway 1838, which is due west of Bedford, Kentucky. Highway 1838 is a two lane, non-divided highway and provides direct access to the site from both the north and south. Traffic access to Highway 1838 will primarily be from Highway 754 out of Bedford. Secondary access to Highway 1838 will be from the north, via Highway 625.

A more detailed description of local roadways can be found in Section 6.0.

3.1.4 Surrounding Terrain

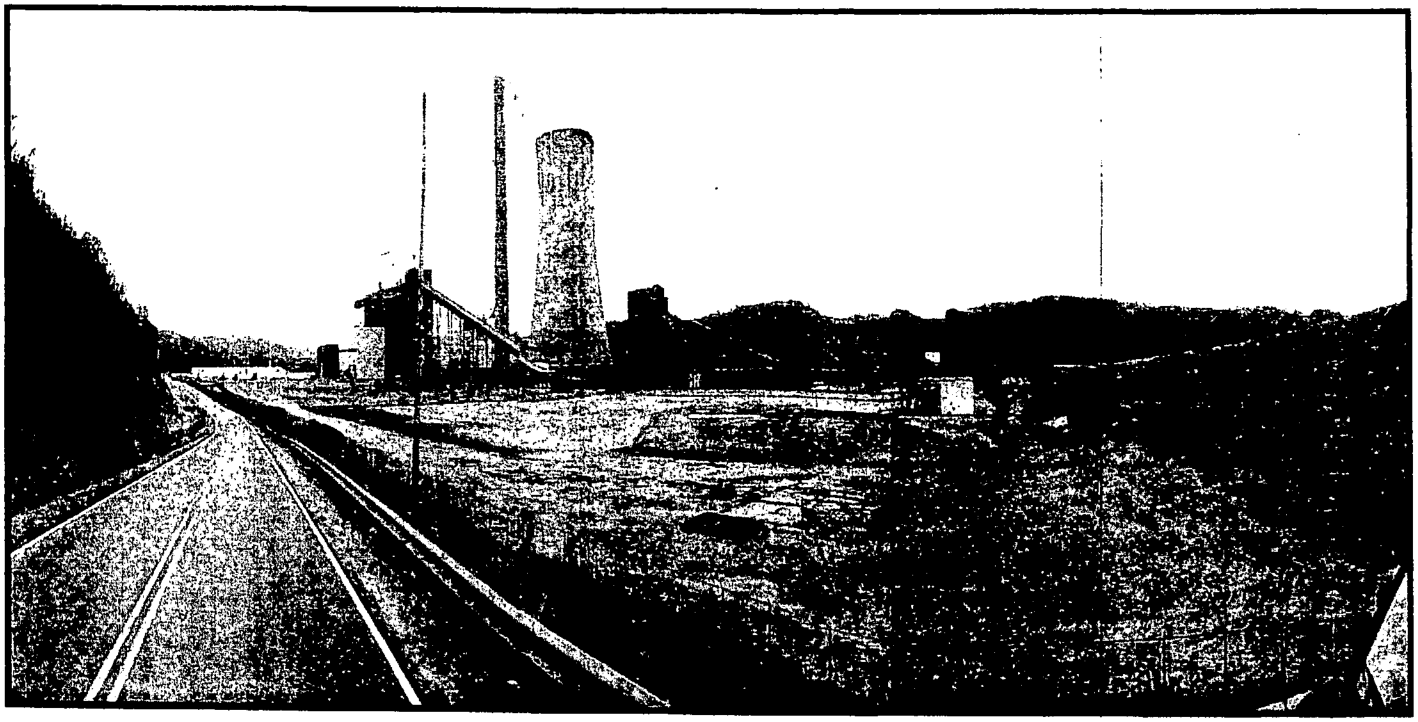
The surrounding terrain and landscape east of the Station site begins to increase in elevation and rises to elevations as high as 900 feet msl in a terrain with extensive relief between the Ohio River and US 421. Most of the terrain east of the Station in Kentucky is densely covered with hardwood vegetation. The surrounding terrain across the Ohio River in Indiana is characterized by steep, 250-foot bluffs running parallel with the river, with flatter plateaus above the bluffs. The bluffs and upper edges of the bluffs are densely vegetated, although the outlying landscape west of the bluffs is sparsely vegetated.

Figure 3-2 provides a view of the Station from Route 1838 in a southerly direction, which illustrates the existing nature of the facility.

3.2 Visual Assessment Methods

While the Kentucky Revised Statutes do not recommend a specific methodology, this assessment incorporated established methods for assessing visual impacts. The visual assessment was conducted to determine if the Project:

- Would be seen from critical scenic locations or views.
- Would have any negative impact to the existing viewshed.
- Would create any contextual compromises to the surrounding environment under existing conditions.
- Would create improvements to the quality of the existing viewshed or surrounding environment.
- Would compromise the intrinsic values of the surrounding landscape based on attitudinal perceptions of the Project.



View to the South of Power Generation Station from North End of Facility Site along Route 1838

Figure 3-2

The assessment methods included the following components:

- Line of site profile modeling.
- Initial review of topographic maps of the area, onsite observations, and windshield reconnaissance of the project vicinity, followed by the identification of areas that could be subject to visual impacts.
- Selection of representative observation points from within the potentially impacted areas.
- Photographic simulations.
- Contextual impact analysis.

3.2.1 Area Reconnaissance and Selection of Key Observation Points

Based on a review of topographic maps, site observations and a reconnaissance of the project vicinity, any areas that were determined to be potentially impacted by the Project were identified. Representative locations, shown on Figure 3-3, were selected from within each area for the purpose of assessing the visual impacts of the Project. These locations are referred to as Key Observation Points (KOPs). Transportation routes, populated areas, and sensitive environments within the area were selected as KOPs to be assessed for impacts due to the Project.

3.2.2 Line-of-Sight Profiles

A topographic model was used to simulate straight line visual "profiles" between the Project and the KOPs. An intersection of the "line-of-sight" line and a topographic profile line was interpreted to represent a visual obstruction between the Project and the KOP. Such an obstruction was deemed to negate visibility, thus eliminating a negative impact. For the purpose of this assessment, the elevations of the existing stack and the existing hyperbolic cooling tower were used for the line-of-sight profiles. These structures were used because they are (and will be) the tallest structures on the site, even considering the structures proposed for the Project.

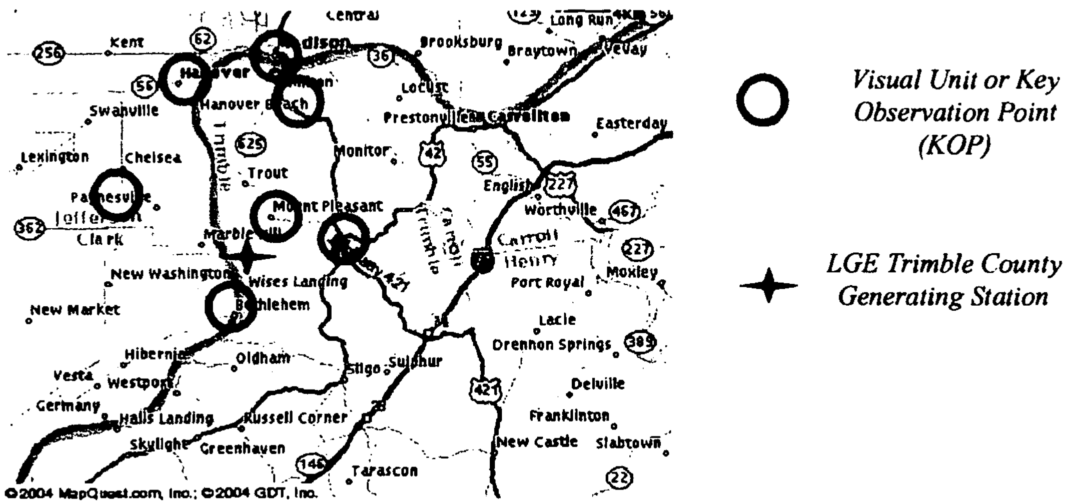


Figure 3-3
Key Observation Points

The line-of-sight profiles reflected visual obstructions in the form of topographic land features. Typically, existing vegetation, newly installed vegetation, or existing structures may also provide visual obstructions depending on the placement in relation to the viewer. For example, the closer the tree line is to the viewer, the more restricted the view. As a conservative approach to the line-of-sight profile modeling for the Project, however, it was assumed there would be no obstructions between the KOPs and the Project other than intervening topography. The profiles were taken in areas where no building structure was directly in the line-of-sight.

3.2.3 Photographic Simulations

Photographs were taken at each of the KOPs to illustrate the existing visual conditions and for use in assessing Project-related visual impacts. The photographs at each KOP were taken in the direction of the existing Station from locations where no building structure was directly in the line-of-sight. Simulations of the Project structures were superimposed on the photographs to represent the visibility and appearance of the Project structures.

3.2.4 Contextual Impact Assessment

The perception and magnitude of the visual impact at each KOP were also considered, and were measured in terms of the "Degree of Contrast." This is a recommended assessment tool utilized by the US Bureau of Land Management (BLM). Table 3-1 shows the categories of the degree of contrast that were used to rate the KOPs being assessed.

Table 3-1
Impact Assessment Criteria

Degree of Contrast	Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Several factors were considered in determining the degree of contrast at each KOP. These factors are summarized below from the BLM criteria:

- ***Distance.*** The contrast created by a project usually is reduced as viewing distance increases.
- ***Angle of Observation.*** The apparent size of a project is directly related to the angle between the viewer's line-of-sight and the slope upon which the project is to take place. As this angle nears 90 degrees (vertical and horizontal), the maximum area is viewable.
- ***Length of Time the Project is in View.*** If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.
- ***Relative Size or Scale.*** The contrast created by the project is directly related to its size and scale as compared to the surroundings in which it is placed.
- ***Season of Use.*** Contrast ratings should consider the physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree

defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.

- ***Light Conditions.*** The amount of contrast can be substantially affected by the light conditions. The direction and angle of lighting can affect color intensity, reflection, shadow, form, texture, and many other visual aspects of the landscape. Light conditions during heavy periods must be a consideration in contrast ratings.

- ***Spatial Relationships.*** The spatial relationship within a landscape is a major factor in determining the degree of contrast.

- ***Atmospheric Conditions.*** The visibility of projects due to atmospheric conditions such as air pollution or natural haze should be considered.

- ***Motion.*** Movement such as waterfalls, vehicles, or plumes draws attention to a project.

- ***Form.*** Contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those continuing to exist in the landscape.

- ***Line.*** Contrast in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines. New lines may differ in their sub-elements (boldness, complexity, and orientation) from existing lines.

- ***Color.*** Changes in value and hue tend to create the greatest contrast. Other factors such as chroma, reflectivity, color and temperature, also increase the contrast.

- ***Texture.*** Noticeable contrast in texture usually stems from differences in the grain, density, and internal contrast. Other factors such as irregularity and directional patterns of texture may affect the rating.

The contextual impact assessment also included an evaluation of the visual importance of each of the KOPs (i.e., significant vs. less significant) based on landscape values and the known or observed amount of use or visitation to the area. For example, a significant KOP may be one which is frequented by a number of people for a relatively long period of time (such as a park), whereas a less significant KOP may be one that is infrequently visited (such as a rural road). Under this scenario, a significant KOP with a "strong" contrast rating may have a negative impact on the visual assessment while a less significant KOP with a contrast rating of "strong" may not have a significant negative visual impact.

3.2.5 Key Assumptions

For the purpose of this assessment, the project features which were assumed to have potential for significant visual impacts included the following:

- Additional massing of new equipment for the proposed 750 MW boiler and the associated steam turbine generator buildings.
- Potential plumes generated by the new 45 foot high cooling tower.
- Additional lighting that may be generated from warning/caution lights mounted on existing and/or new structures.

It was assumed that the existing Station has a neutral effect because it is existing and is an integral part of the current landscape, and is an accepted landscape element. Therefore, the assessment has been made based only on the Project.

3.3 Visual Impact Assessment Results

3.3.1 Line-of-Sight Profile

Based on the results of the topographic map review, site observations and a reconnaissance of the project vicinity, it was determined that several areas could potentially be visually impacted by the Project. In general, these areas consisted of rural areas and small communities. The representative KOPs that were selected from within each of these areas included the following:

- Town of Bedford in Trimble County, Kentucky located approximately 5.6 miles east of the Station.
- Areas or communities along US Route 421 in Trimble County, Kentucky.
- Rural areas of Trimble County, Kentucky.
- Residential community of Wises Landing just south of the Station along the Ohio River.
- Community of Bethlehem, Indiana on the Ohio River approximately 2 miles downstream from the Station.
- The historic community of Madison, Indiana that is approximately 10 miles upstream of the Station and selected because it is a major node along the Ohio River Scenic Byway in Indiana.

- Areas along the Ohio River Scenic Byway, which parallels the Ohio River in Indiana.

The KOPs represented a radial viewshed from the proposed Project (see Figure 3-4).

Figures 3-5, 3-6 and 3-7 illustrate the line-of-sight profiles between the selected KOPs and the Project. As previously described, an intersection of the "line-of-sight" line and a topographic profile line was interpreted as representing a visual obstruction between the Project and the KOP. Such an obstruction was deemed to negate visibility, thus eliminating a negative impact.

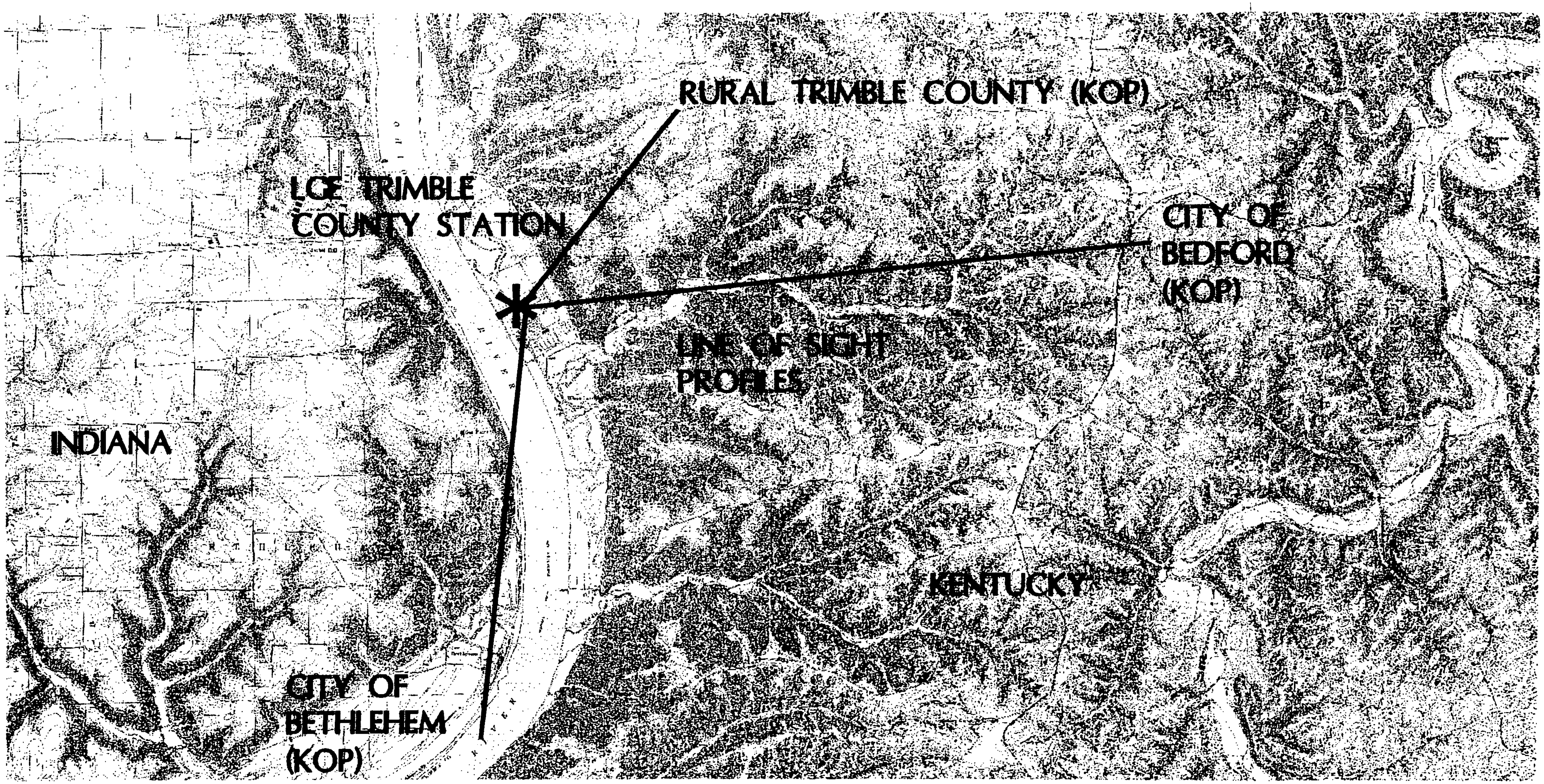
It should be noted that the line-of-sight profiles do not reveal the variety of vegetative covers present between each KOP and the site. Typically, the heights of any intervening vegetation or other features would be added to the heights represented on the topographic profiles. In taking a conservative approach in this assessment, however, intervening vegetation was not accounted for.

The vegetation types that were observed during the assessment included grass (vegetation heights ranging from 0 to 18 inches), wetlands (vegetation heights ranging from 0 to 48 inches), forested wetland areas (vegetation heights ranging from 0 to 20 feet), evergreen forested areas (vegetation heights ranging from 20 to 40 feet), and tree lined corridors (vegetation heights ranging from 10 to 50 feet). Within the proposed site itself, vegetation is sparse.

3.3.2 KOP Assessment

The following paragraphs describe the visual effects of the Project at each of the KOPs and assign a corresponding degree of contrast rating for that location.

Town of Bedford in Trimble County, Kentucky. Bedford, the county seat of Trimble County, can be characterized as a rural community with a population of approximately 5,000. Bedford is approximately 5.6 miles due east of the Station. Approximately 30 percent of the Station workforce resides in this area. Between Bedford and the Station is approximately 425 feet of elevation change with the average elevation of Bedford at 925 msl. The landscape between Bedford and the Station can be characterized as steeply rolling with dense deciduous vegetation. Partial views of the Station, obstructed by landscape features, can be observed throughout the community. Contrast Rating – "None."



SCALE: 1"=5000'-0"

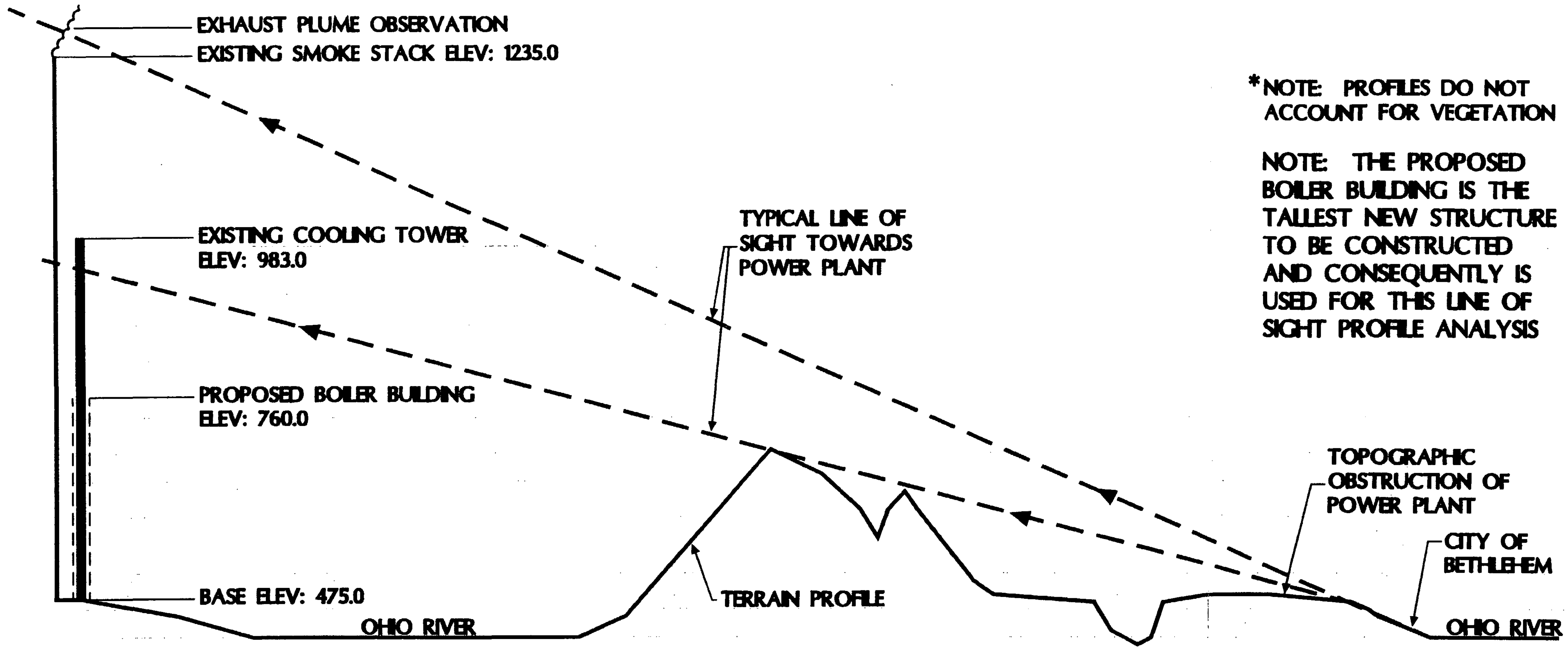
LINE OF SIGHT TOPOGRAPHIC PROFILE FROM KEY OBSERVATION POINTS (KOP)

Figure 3-4

JOHN L. CARMAN & ASSOCIATES, INC.

*NOTE: PROFILES DO NOT ACCOUNT FOR VEGETATION

NOTE: THE PROPOSED BOILER BUILDING IS THE TALLEST NEW STRUCTURE TO BE CONSTRUCTED AND CONSEQUENTLY IS USED FOR THIS LINE OF SIGHT PROFILE ANALYSIS

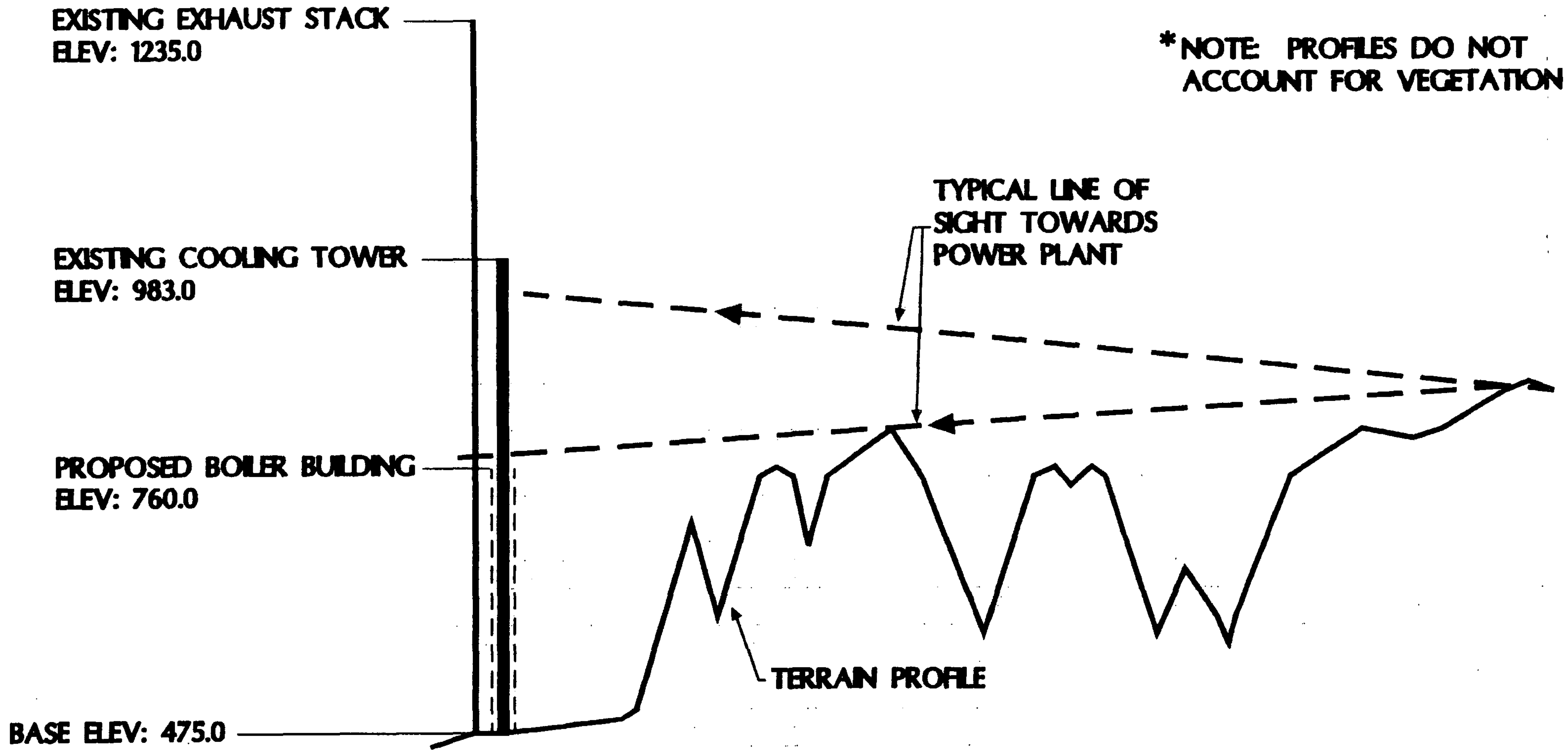


SECTION SCALE
VERTICAL: 1"=150'-0"
HORIZONTAL: 1" = 1500'-0"

LINE OF SIGHT PROFILE

Figure 3-5
Bethlehem

JOHN L. CARMAN & ASSOCIATES, INC.



NOTE: THE PROPOSED BOILER BUILDING IS THE TALLEST NEW STRUCTURE TO BE CONSTRUCTED AND CONSEQUENTLY IS USED FOR THIS LINE OF SIGHT PROFILE ANALYSIS

NOTE: PROFILE SELECTED FROM A POINT THAT POWER PLANT CAN BE OBSERVED. OBSERVATION THROUGHOUT COUNTY IS NOT CONSTANT DUE TO LANDSCAPE OBSTRUCTIONS.

SECTION SCALE
VERTICAL: 1"=150'-0"
HORIZONTAL: 1" = 1500'-0"

LINE OF SIGHT PROFILE

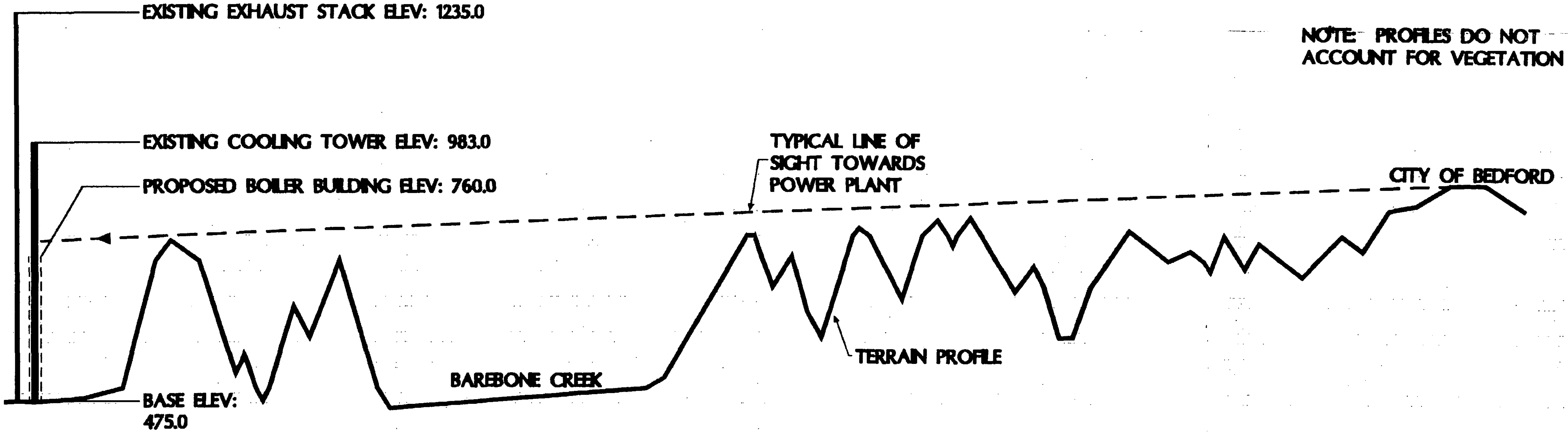
Figure 3-6
Rural Trimble County

JOHN L. CARMAN & ASSOCIATES, INC.

NOTE: THE PROPOSED BOILER BUILDING IS THE TALLEST NEW STRUCTURE TO BE CONSTRUCTED AND CONSEQUENTLY IS USED FOR THIS LINE OF SIGHT PROFILE ANALYSIS

NOTE: PROFILE SELECTED FROM A POINT THAT POWER PLANT CAN BE OBSERVED. OBSERVATION THROUGHOUT COUNTY IS NOT CONSTANT DUE TO LANDSCAPE OBSTRUCTIONS.

NOTE: PROFILES DO NOT ACCOUNT FOR VEGETATION



SECTION SCALE
VERTICAL: 1"=200'-0"
HORIZONTAL: 1" = 2000'-0"

LINE OF SIGHT PROFILE

Figure 3-7
Bedford

JOHN L. CARMAN & ASSOCIATES, INC.

Areas or communities along US Route 421 in Trimble County, Kentucky. US Route 421 traverses Trimble County in a north-south direction, paralleling the Ohio River. It provides the nearest bridge across the Ohio River into Indiana, between Milton, Kentucky and Madison, Indiana. US Route 421 is approximately 5 to 6 miles east of the Ohio River in Trimble County. Daily traffic counts average approximately 4,400 vehicles per day between Bedford and Madison. There are no direct views toward the Station, however, the Station can be deliberately observed in the distance at various points. Contrast Rating – "Weak."

Figure 3-8 provides views of the Station from a location along Route 421 primarily in a southwesterly direction. Only the top of the existing cooling tower, stack, and exhaust plume can be observed.

Rural areas of Trimble County, Kentucky. There are numerous county roads traversing the countryside in Trimble County. County roads west of US 421 lend the most opportunities for viewing the Station. Farms and scattered residential areas can be found along these county roads. Traveling in a westward direction toward the Ohio River gives some opportunities to view the Station, although no direct lines-of-sight with continuous viewing were found. The occasional and periodic views were passive at best and gave only short glimpses of the Station. Views of the Station were distant and somewhat subliminal. Distant views of other "utility" facilities were also a part of the viewshed from the rural countryside facing a westerly direction. Contrast Rating – "Weak".

Figure 3-9 provides views of the Station toward the west from a location that is typical of rural Trimble County. Only the top of the existing cooling tower, stack, and exhaust plume can be observed.

Residential community of Wises Landing. A small residential community immediately south of the Trimble County Station, approximately ½ mile downstream of the Station. There are few landscape obstructions to the Station from this community and most facilities associated with the Station can be observed from within this small river community. Contrast Rating – "Strong."

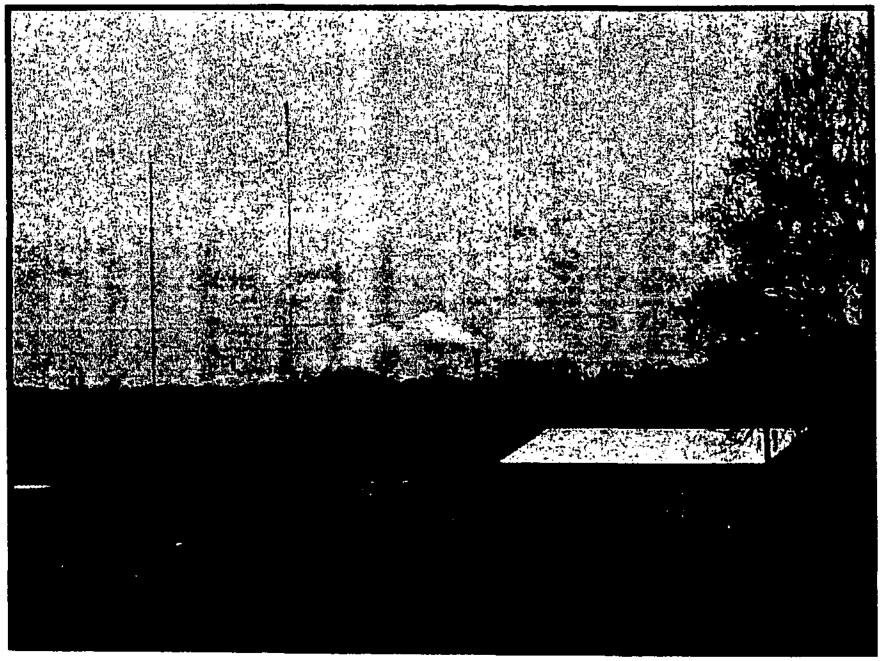
Community of Bethlehem, Indiana. A small residential community on the Ohio River approximately 2 miles downstream of the Station. This quaint little community located in Clark County, Indiana is accessed from New Washington via two different county roads that intersect with State Route 62. The community offers scenic views of the Ohio River and two bed-and-breakfast facilities within the town. There is an annual "Autumn on the River Festival" in August, which attracts numerous visitors to this historic community. There are no direct views of the Station from the center of town, although there are some views from the western edge of town of the stack and cooling tower located beyond the ridgeline of the hills to the north. Contrast Rating – "None" to "Weak."

Figure 3-10 provides views of the Station from two locations within the community of Bethlehem. Only minimal views of the top of the existing cooling tower and stack can be observed in addition to the exhaust plume.

Madison, Indiana. A medium size historic community approximately 10 miles upstream of the Station and selected because it is a major node along the Ohio River Scenic Byway in Indiana. The town attracts visitors and tourists from the region because of its upscale shopping, antique shops, and general presence on the Ohio River. Due to its geographic location on an easterly bend of the Ohio River, no direct line-of-site to the Station was observed. Although, the Clifty Branch power plant located in Madison, Indiana dominates the westerly and southerly view downstream from Madison. Contrast Rating – "None."

Figure 3-11 provides a view toward the Station from downtown Madison that shows the Clifty Branch power plant.

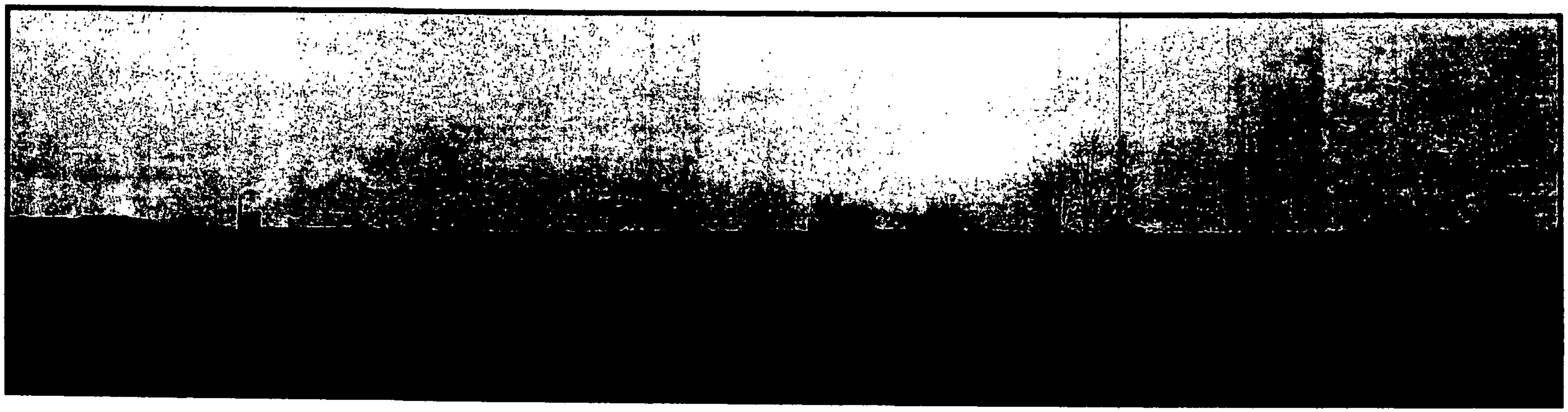
Areas along the Ohio River Scenic Byway. Indiana State Route 62 has been designated as a Scenic Byway and runs in a north-south direction between Madison, Indiana and Jeffersonville, Indiana while passing through the communities of Hanover and New Washington. The Ohio River Scenic Byway parallels the Ohio River in Indiana and is 7 – 8 miles west of the river. Landscapes along this scenic byway are typical of the Indiana environment in this part of the state. This Scenic Byway is traveled by tourists and visitors enroute between Louisville, Kentucky and Madison, Indiana while visiting attractions offered by the various communities along the way. Traffic counts average approximately 5,500 vehicles per day along the byway. Direct, dominating views of the Station are rare along the byway due to landscape obstructions. The byway is not oriented to yield a direct line-of-site. Users of the Ohio River Scenic Byway will often travel toward points of interest closer to the Ohio River, such as Hanover College. Contrast Rating – "None to Weak."



View from US 421 near Bedford toward the Power Plant. Top portions of existing stack and cooling tower with plumes are slightly visible.

View South from US 421 near Milton, Kentucky toward Power Plant. Top portions of existing stack and cooling tower with plumes are slightly visible.

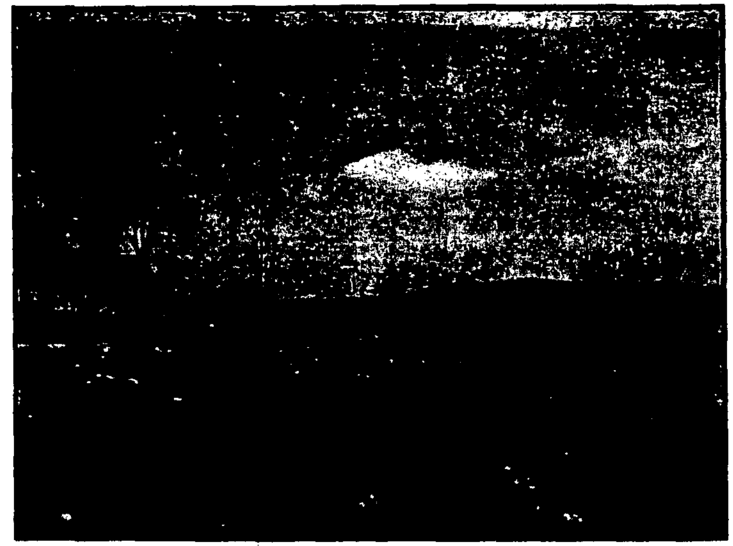
Figure 3-8



Viewshed toward the West from Rural Trimble County

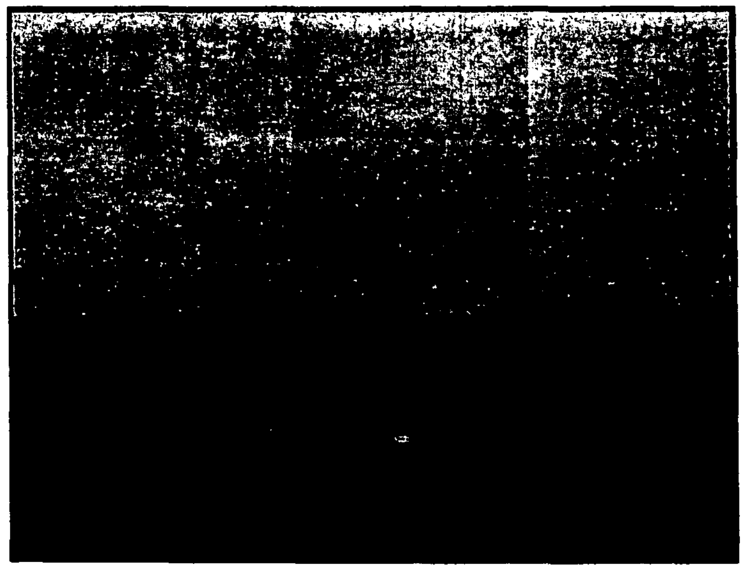
Figure 3-9

View North from Western Edge of Bethlehem toward Power Plant



View North from Ohio River Bank at Bethlehem toward Power Plant

Figure 3-10



View South from Madison toward the Trimble County Station (not pictured) with Clifty Branch Power Plant Stacks in Background

Figure 3-11

Figure 3-12 provides views toward the Station from an area along the Ohio River Scenic Byway in Indiana. This view is typical along the byway. A view of only the exhaust plume can be seen.

The simulated views looking towards the Trimble County Station from Wises Landing represents the worst-case scenario with regards to potential impact, although the addition of new equipment buildings, which are lower in elevation than existing structures, does not dramatically change the overall mass and relative scale of the viewshed. The context or texture of the new structures is essentially the same as current visual elements. The change will not be dissimilar to existing forms that currently exist at the Station.

Figure 3-13 provides views of the Station from Wises Landing that depict simulations of the mass of the new equipment building structures and illustrate minimal impact or change to the viewshed.

Significant vs. Less Significant KOPs. The KOPs were segregated into "Significant" and "Less Significant" categories according to the process described in Section 3.3.4. Tables 3-2 and 3-3 are conclusions and justification of visual importance.

Table 3-2

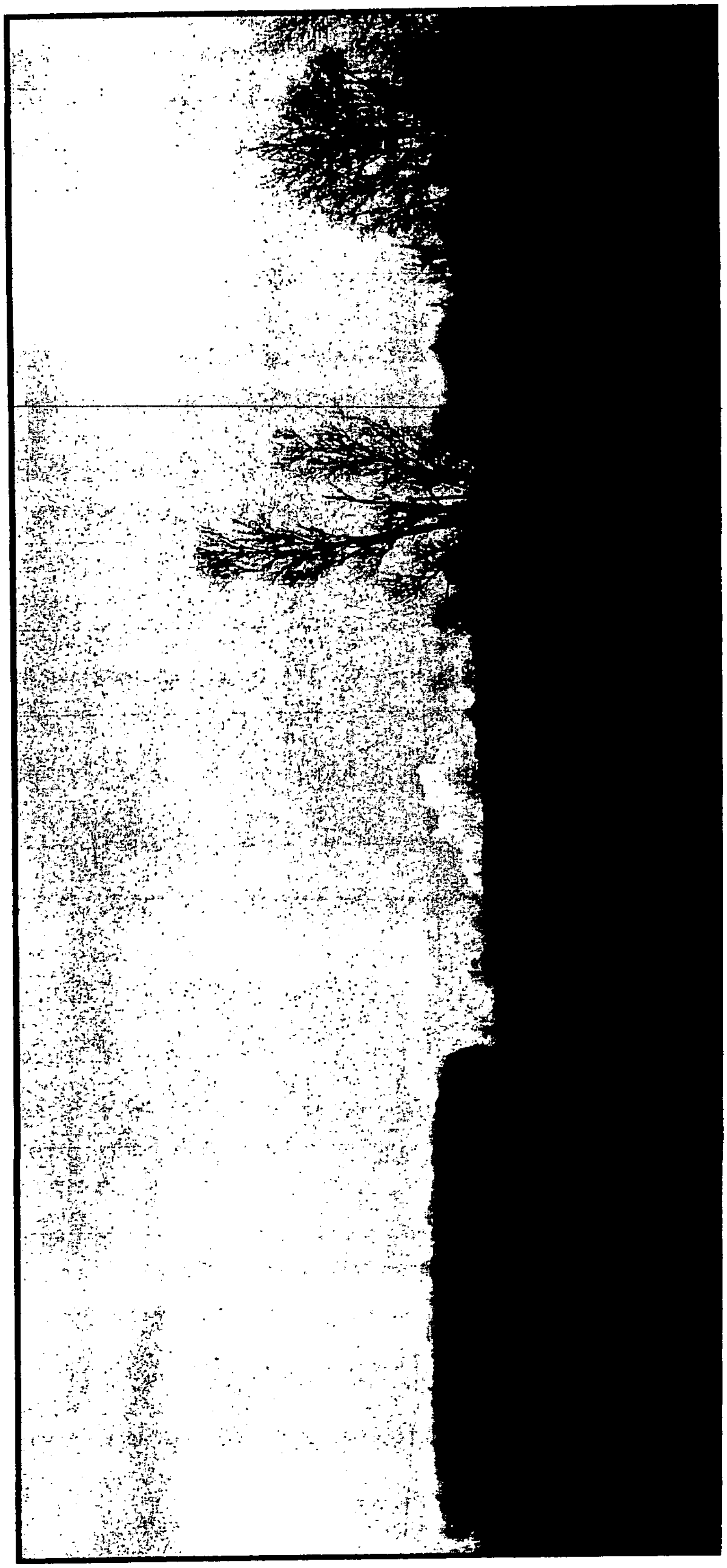
Significant Scenic Visual Units (KOPs)

KOP	Reasons
Community of Bedford	Located at intersection of US Route 421 and US Route 42 with significant traffic counts; major north - south artery; county seat attracting visitors and routine business traffic.
Areas/communities along US Route 421	Major north – south route to Indiana with significant traffic counts.
Madison, Indiana	Significant destination point for tourist at intersection of US Route 421 and the Ohio River Scenic Byway.
Ohio River Scenic Byway	Major north – south route in Indiana between Louisville, Kentucky and Madison, Indiana – significant traffic counts; access to observation points for Ohio River.
Community of Bethlehem	Residential river community attracting visitors/tourists to Bed and Breakfasts, historic attractions, and annual festival.

Table 3-3

Less Significant Scenic Visual Units (KOPs)

KOP	Reasons
Rural Areas of Trimble County	Sparsely traveled; occupied by residents of county; no significant destination points for visitors/tourists
Wises Landing	Residential community consisting of approximately 20 structures; no historic structures or destination points that would attract visitors or tourists

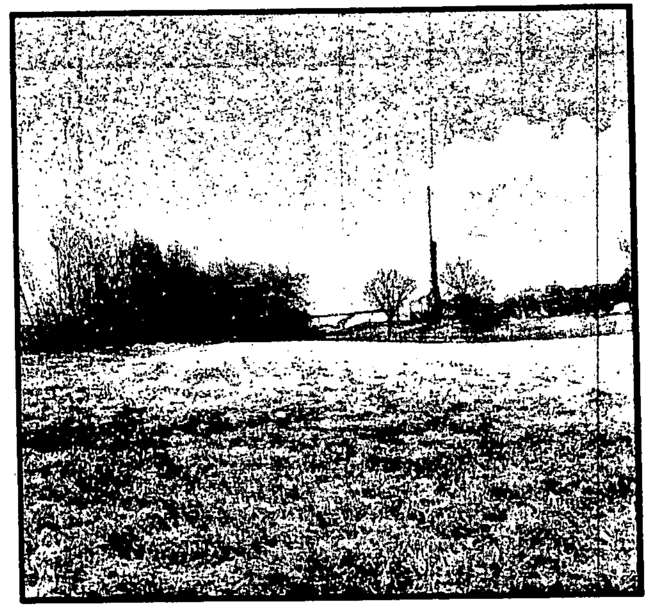


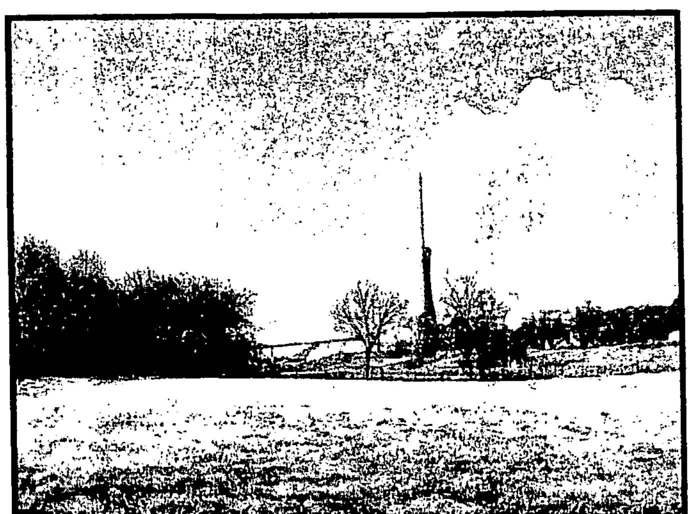
View to the East from the Ohio River Scenic Byway with Exhaust Plumes in Background

Figure 3-12

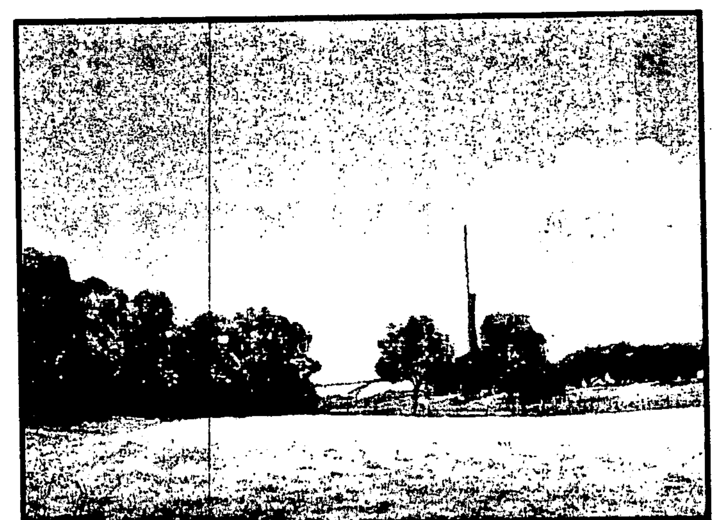
Figure 3-13

Existing View of Power Plant from Wises Landing





Simulated View of Power Plant from Wises Landing illustrating the massing of proposed new equipment buildings in background – Winter view



Simulated View of Power Plant from Wises Landing illustrating the massing of the proposed new equipment buildings in background – Additional obstructions with tree foliage in season

The significant KOPs yielded minimal impact from the proposed Project due to visual obstructions in the landscape; lack of views to the proposed new structures on the site; no significant increases in noise, exhaust plumes, or lighting; distance from the Project (which significantly reduces the direct impact); and/or no direct lines-of-sight from the KOPs to the Project.

The less significant KOPs had mixed impact results. The rural areas of Trimble County had a weak contrast rating while Wises Landing had a strong contrast rating. Nevertheless, the overall impact to Wises Landing was deemed to be less significant because the existing conditions, accepted by the residents, are not further compromised by the expansion. The contrast and spatial differences of the proposed improvements are minimal in comparison to the existing structures. Additionally, the landscape "clutter" and natural obstructions tend to minimize the scale and contrast of the facility. Further, the intrinsic value of the Project helps to offset any negative visual impacts due to the Station's historical presence within the community as well as the perceived and real value of the Station in terms of its contributions to the community.

3.3.3 Climatic Effects on Visibility

Weather conditions can affect visibility of distant objects. For example, rainy and cloudy days prevent long distance viewing of the countryside during those periods. Snow, ice, and sleet events can create additional climatic interruption in the atmosphere and further reduce visibility in the area. Consequently, weather factors should be considered in performing a visual assessment.

According to the Midwestern Regional Climate Center (MRCC), a cooperative program of the Illinois State Water Survey and the National Climatic Data Center (National Oceanic and Atmospheric Administration, U.S, Department of Commerce), there are 123 rainy days a year reported at the Madison, Indiana weather station # 125237. Additionally, according to the National Oceanic and Atmospheric Administration and the National Climatic Data Center in Asheville, North Carolina, approximately 171 cloudy days and 102 partly cloudy days a year have been reported in the area. The chance of sunshine averages only 53 percent on an annual basis. Considering these factors and the location of the project (i.e., situated in a fairly remote area and a significant distance to any populated areas), it is likely that the Project will at times be less visible due to the occurrence of low cloud formations, rain, snow and other climatic conditions.

3.4 Visual Impact Assessment Summary

The analyses conducted as part of the visual assessment indicated that the scenic qualities of the area will not be compromised because of the Project. This conclusion is based on the following factors:

- The line-of-sight profiles and photographic simulations illustrate minimal to no difference in visual impact due to the Project. The Project is obstructed by various landscape and environmental elements either partially or totally from various critical baseline points of scenic reference. In many cases, the actual structures are not observed throughout the landscape - only plumes can be observed.

- The existing Station has a high intrinsic value, which lessens the perceived impacts to the residents of Trimble County.

- No significant increase in plume visibility is anticipated due to dissipation at higher elevations. Regardless, the plumes do not create a high contrast in the visual landscape or viewsheds.

- Distant views will likely be further obstructed or the views will become opaque approximately 50 percent of the year due to climatic conditions of cloud cover and rainfall/snowfall.

- In many cases, the exposure to a view of the Project will be brief and/or will be limited to few people.

- The existing Station structures are already an accepted part of the landscape, such that the addition of the Project will not be perceived as a significant change. The expansion of new structures (Project) at the Station are infill to similar and more obtrusive facilities and will not change the spatial qualities or characteristics of the existing Station.

- The visual assessment was performed during the winter months when views of the Station were more noticeable. Due to the dense mass of woody vegetation prevalent in the area, these views would be more obstructed during most of the year due to the spring, summer, and fall leaf cover on trees and other tall vegetation.

3.5 Mitigation

The analyses conducted as part of the visual assessment indicated that the scenic qualities of the area will not be compromised because of the Project. Consequently, no mitigation regarding visual impacts is required or proposed.

4.0 Property Value Assessment

This section evaluates the potential for change in property values as a result of construction and operation of the Trimble County Unit 2 Project (Project). The approach utilized was developed based on the information readily available, consisting of Trimble County property sales and assessment data that were collected for properties near and remote from the Trimble County Station (Station).

4.1 Methodology

The methodology used in the analysis was to test the premise that property sales values and assessed values for comparable properties are correlated with, and explained by, distance from the Station. If recent historical sales and assessed values for comparable properties are highly and positively correlated with distance from the site (values increase as distance from the plant increases), then it may suggest that the presence of the Station has had a negative impact on property values. On the other hand, if distance from the Station appears not to be correlated with sales and assessed values, and if other factors appear to best account for the variation in sales and assessed value, then it would support the conclusion that the presence of the Station has no impact or a minor overall impact. Therefore, it would be logical to conclude that the addition of capacity at this existing site would have no significant impacts.

The analysis involved the collection of information and data from the Trimble Country Property Value Assessor by Black & Veatch and a local realtor. Information collected included selected property sales value information and assessed values of properties located both adjacent to the Station, and randomly in Trimble County. During the week of March 8, 2004, a reconnaissance survey was conducted to visually review several properties and to gain insight regarding the surrounding areas. The purpose of the survey was to help identify comparable properties that would be suitable for statistical analysis.

4.2 Statistical Analysis of Property Sales Data

Two evaluations were performed to assess whether the existing Station has had a historical impact on property values in Trimble County. These evaluations served as an indicator of the potential for the Project to have an impact on property values in the future. The first analysis measured the correlation between sales price data, property size, and proximity to the project. Table 4-1 shows the sample of 40 rural properties considered in the evaluation, along with sales price data, property size, and distance from the Project.

Table 4-1

Rural Property Sales in Trimble County[1]

Property Address	Sale Price[1]	Size (ac)	Adj Sale Price Per Acre[1]	Distance from Project (miles)
43 Fairway Drive	$10,000	2.0	$5,000	10.4
20 Fairway Drive	$12,000	4.4	$2,729	10.7
667 Gills Ridge Road	$32,500	4.6	$7,081	4.3
916 Bay Bridge Road	$45,000	9.0	$4,231	5.9
327 Fairway Drive	$31,000	9.4	$3,308	10.7
773 Button Ridge Road	$27,500	10.0	$2,750	5.9
9 Persell Road	$45,000	10.1	$4,460	8.8
243 Fairway Drive	$35,000	11.6	$3,012	10.7
460 Starks Lane	$55,000	14.9	$3,347	10.4
3720 Bray Ridge Road	$50,000	20.0	$2,500	2.8
1 Mount Pleasant Road	$95,000	23.9	$3,968	9.5
706 Button Ridge Road	$55,000	30.1	$1,827	6.4
6375 Highway 42	$63,756	35.4	$1,800	10.7
3800 Sulphur-Bedford Road	$72,800	54.0	$1,348	12.6
1436 Richmond Hill Road	$81,480	54.3	$1,500	15.4
1511 Morton Ridge Road	$160,000	61.5	$2,602	7.6
2184 Highway 421	$197,000	61.5	$2,602	9.9
36 Heather Drive	$197,000	71.3	$2,593	14.2
299 Racetrack Road	$234,191	87.1	$1,898	14.7
1532 Gossom Lane	$178,500	89.5	$1,927	6.2
2333 Peck Pike	$195,500	89.7	$1,733	11.4
2066 Hwy 42 West	$425,000	100.8	$2,773	7.8
1 Corn Creek Road	$135,000	115.0	$1,174	1.2
30 Corley Lane	$250,000	122.4	$1,737	6.9
41 Corn Creek Road	$135,000	120.0	$1,125	3.1
3753 Morton Ridge Road	$180,501	125.1	$1,443	6.2
100 Fisher Ridge Road	$350,000	130.6	$2,358	13.7
6501 Highway 42 West	$342,500	140.0	$2,446	11.1
947 Leeport Road	$185,000	149.6	$1,412	9.9
3174 Peck Pike	$280,000	150.0	$1,540	7.6
2071 Highway 42 West	$150,000	169.5	$752	8.5
5262 Mount Pleasant Road	$139,000	105.0	$1,152	5.2
50 Wises Landing Road	$201,000	114.8	$1,750	1.0
1532 Wises Landing Road	$310,000	373.3	$670	1.9
Wises Landing Road	$158,400	61.0	$2,500	1.7
Wises Landing Road	$75,900	53.9	$1,409	2.1
1703 Wises Landing Road	$400,000	193.4	$2,017	2.6
Gills Ridge Road	$138,000	99.1	$1,292	4.5
Gills Ridge Road	$150,000	112.0	$1,340	5.0
2066 Highway 42	$375,000	100.8	$2,698	7.8

NOTES:
1. Prices are at the time of sale, before inflationary adjustments.

A correlation analysis was performed to determine the relationship of the sales price per acre of properties in Trimble County with proximity to the existing Station site. In the analysis, the time adjusted sales price per acre from Table 4-1 was used, as this measure subtracts the value of improvements on a property. This measure was further modified for inflation, assuming a 3 percent annual adjustment. In correlation analysis, the correlation value can be between -1 and 1, with a value of zero showing no correlation. The premise of the analysis is that if the Station has had a significant impact on property values, then in a large and random sample, a positive correlation between property sales price and distance would be observed. As shown in Table 4-2, however, the correlation between sales price and proximity to the Station is low at 0.18. As such, it appears that that proximity to the Station has a relatively small correlation with the sales price of the properties.

By way of comparison, a second correlation analysis was performed to show the strength of relationship between sales price per acre and size of the property sold. In this case, a negative correlation would be expected such that the larger the rural property, the lower the price per acre would be. As shown in Table 4-2, the correlation between sales price per acre and property size is fairly strong (i.e., -0.63). Overall, then, the relationship between property size and adjusted sales price per acre is much stronger than the relationship between proximity to the Station and adjusted sales price per acre. It appears that recent sales prices are fairly strongly affected by property size and very weakly affected by proximity to the Station. This suggests that adding incremental capacity to an existing site would also be expected to have a very small impact on property sales values.

In addition to the correlation analysis, a second type of analysis was performed using regression analysis. This method determines the amount of variation in value of a dependent variable that can be explained by the value of one or more independent variables. For this study, a regression analysis was performed assuming the sales price per acre was the dependent variable, and distance from the Station was the independent variable. The key output of the regression analysis is a measure called the adjusted R-square. The negative R-square value, shown in Table 4-2 as -0.007, means that none of the total variation in the sales price per acres is attributed to distance from the Station. For comparative purposes, when the adjusted sales price per acre is modeled as a function of the size of the property, an R-square value of 0.375 results. In other words, about 37.5 percent of the total variation in sales price per acre can be explained by the size of property sold. This again suggests that there are much more important factors influencing property value than proximity to the Station. It is also reasonable to conclude that, because the Project would be installed at the existing Station site, the new unit would not have a significant impact on property values in the future.

Table 4-2
Results of Statistical Analysis of Rural Property Sales Price

Correlation Analysis	Statistical Value	Relative Strength
Statistical correlation between adjusted sales price per acre and distance from Project	0.18	Weak
Statistical correlation between adjusted sales price per acre and size	-0.63	Moderately Strong

Regression Analysis	Adjusted R-Square[2]	Percentage
Variation in adjusted sales price due to distance from Project	-0.007	0.8%
Variation in adjusted sales price due to size of property	0.375	35.4%

NOTES
1. Negative value indicates a negative correlation between the variables and is expected in this case. In other words, the larger the tract of land is, the lower the per-acre price is.
2. R square value is defined as the percentage (or proportion) of the total variation in one variable (i.e., sales price) explained by the regression model.

4.3 Statistical Analysis of Assessed Property Values

To further evaluate the potential affect of the Project on nearby property values, additional statistical evaluations were performed using assessed property values instead of the previously tested sales price data. Specifically, the analysis evaluated the variation in assessed property values due to both the property's proximity to the Project and to the size of the property. Table 4-3 shows the properties that were considered in this evaluation, along with assessed property values at the time of sale, property size, and distance from the Project. Included in this list are the properties located adjacent to the Station that are zoned farming, and properties zoned farming from the list in Table 4-1 if assessment data at the time of sale were available. Properties that were zoned farming were used because farm property is predominant in the area and therefore provide and measure of comparable lands.

A correlation analysis was performed to determine the relationship of the assessed value per acre of properties in Trimble County with proximity to the existing Station site. The analysis was based on the assessed property values in Table 4-3, but adjusted for inflationary impacts since the time of sale. Again, the premise of the analysis is that if the Station has had a significant impact on property values, then a positive correlation between property sales price and distance would be observed. As shown in Table 4-4, however, the correlation between sales price and proximity to the Station is -0.066.

Table 4-3

Assessed Property Values for Selected Properties in Trimble County

Property Address / PVA Map No.	Assessed Value[1]	Size (ac)	Assessed Value Per Acre	Distance from Project (miles)
20 Fairway Drive	$14,000	4.4	$3,184	10.7
460 Starks Lane	$48,000	14.9	$3,213	10.4
3720 Bray Ridge Road	$20,000	20.0	$1,000	2.8
3800 Sulphur-Bedford Road	$35,000	54.0	$648	12.6
1532 Gossom Lane	$165,000	89.5	$1,844	6.2
1 Corn Creek Road	$130,000	115.0	$1,130	1.2
41 Corn Creek Road	$84,000	120.0	$700	3.1
947 Leeport Road	$142,814	149.6	$954	9.9
5262 Mount Pleasant Road	$70,000	105.0	$667	5.2
Wises Landing Road	$201,000	61.0	$3,297	1.7
1703 Wises Landing Road	$275,000	193.4	$1,422	2.6
010-00-00-036.00	$350,000	152.0	$2,303	0.1
010-00-00-013.00	$316,500	118.0	$2,682	0.1
010-00-00-042.00	$300,000	150.8	$1,989	0.1
010-00-00-024.02	$300,000	111.0	$2,703	0.1
004-00-00-003.00	$220,000	63.0	$3,492	0.1
010-00-00-016.06	$180,000	59.0	$3,051	0.1
011-00-00-001.00	$167,000	93.0	$1,796	0.1
010-00-00-010.00	$150,000	41.0	$3,659	0.1
010-00-00-001.00	$135,000	115.0	$1,174	0.1
011-00-00-003.00	$125,000	110.0	$1,136	0.1
010-00-00-016.01	$120,000	43.0	$2,791	0.1
010-00-00-016.07	$100,000	113.0	$885	0.1
010-00-00-028.00	$65,000	25.0	$2,600	0.1
004-00-00-004.00	$60,000	15.0	$4,000	0.1
011-00-00-016.00	$55,000	51.0	$1,078	0.1
011-00-00-010.00	$35,000	24.0	$1,458	0.1
010-00-00-038.00	$33,000	20.0	$1,650	0.1
010-00-00-016.08	$6,000	10.5	$571	0.1

NOTES:
1. *Assessed value per acre are at the time of sale and do not include inflationary adjustments.*

Table 4-4

Results of Statistical Analysis of Assessed Property Values

Correlation Analysis	Statistical Value	Relative Strength
Statistical correlation between assessed value per acre and distance from Project	-0.066	Weak
Statistical correlation between assessed value per acre and size	-0.351	Moderately Strong

Regression Analysis	Adjusted R-Square[2]	Percentage
Variation in assessed value due to distance from Project	-0.033	1.9%
Variation in assessed value due to size of property	0.091	7.8%

NOTES
1. Negative value indicates a negative correlation between the variables and is expected in this case. In other words, the larger the tract of land is, the lower the per-acre price is.
2. R square value is defined as the percentage (or proportion) of the total variation in the dependent variable (i.e., size or distance) explained by the regression model.

By way of comparison, a second correlation analysis was performed to show the relationship between assessed value per acre, and size of the property sold. In this case, a negative correlation would be expected such that the larger the rural property, the lower the assessed value per acre. As shown in Table 4-4, the correlation between sales price per acre and property size is fairly strong (i.e., -0.35). Overall, then, the relationship between property size and assessed value per acre is stronger than the relationship between proximity to the Station and adjusted sales price per acre. Therefore, it appears that assessed property values are very weakly affected by proximity to the Station, and suggests that adding incremental capacity at an existing site would also be reasonably expected to have a very small impact on property assessed values.

A regression analysis was also performed to measure the amount of variation in assessed value per acre that can be explained by distance from the Station. For this regression analysis, the assessed value per acre was the dependent variable, and distance from the Station was the independent variable. The resulting adjusted R-square value, shown in Table 4-4, is -0.033 and the negative value indicates that none of the variation in the assessed value per acre is explained as a function of distance from the Station. This again suggests that there is not a meaningful relationship between assessed value and distance from the Station, and that the Project would not be expected to have a significant impact on assessed property values in the future. For comparative purposes, when the assessed value per acre is modeled as a function of the size of the property, an adjusted R-square value of 0.091 results. In other words, about nine percent of the total variation in assessed value per acre can be explained by the size of the farm property sold.

4.4 Coleman Plant Property Evaluation

Based on a real estate value study (Study) included in the Thoroughbred Energy Campus Site Assessment Report which was filed with the Kentucky State Board on Electric Generation and Transmission Siting, the Coleman Plant is a 521 MW coal-fired, base load power plant located in Hancock County, Kentucky. The plant is located in an agriculturally dominated area with at least 80 percent of the land surrounding the Coleman Plant being used for agricultural purposes. In addition to agriculture, the surrounding area includes other industrial facilities, including a large aluminum mill.

Based on land sale data provided in the Study, the average price per acre for land near the Coleman Plant was approximately $1,387 and includes sales data for four tracts of land. For comparison, land remotely located from the Coleman Plant sold for an average of $1,181 per acre and includes sales data for three tracts of land.

Table 4-5 provides a description of the land types of the seven tracts of land included in the Study. As shown, all seven tracts of land consist of Class II ground and wooded areas. According to discussions between the Hancock County PVA office and Black & Veatch personnel, Class II land is considered good, tillable farm ground and typically sells for slightly more than Class III land and slightly less than Class I land. In addition, the tillable ground is typically considered more valuable than wooded ground.

Table 4-5
Summary of Land Sales Near the Coleman Plant[1]

Sale #	740-A	740-C	740-B	740-D	800	801	900
Adj Sale Price	$130,000	$360,000	$46,000	$120,000	$75,000	$117,500	$55,497
No. Acres	91	137	66	151	42.32	30.42	42.69
Class II	78.5	128.1	30.6	125.2	32	24	42.69
Woods	12.5	8.9	34.4	25.8	10.32	4.92	n/a
Price/Acre[2]	$1,429	$2,628	$697	$795	$1,110	$1,134	$1,300

NOTES
1. Based on data from the Site Assessment Report by G. Herbert Pritchett & Assoc., Inc. for the Thoroughbred Energy Campus, dated July 9, 2003.
2. Overall price per acre is indicative of land only.

The Study, based on property values near the Coleman Plant, concluded that properties located adjacent to power plants tends to sell for more per acre than those that are not adjacent to power plants. As such, no negative impacts were identified as a result of the construction and operation of the Coleman Plant.

4.5 Rockport Plant Property Evaluation

Based on information provided in the Study, the Rockport Plant is a 2,600 MW coal-fired, base load power plant located in Spencer County, Indiana, which is located immediately north of Daviess County, Kentucky. The plant is located in an agricultural area adjacent to the Ohio River and includes some rural residential uses. In general, the land in the immediate vicinity of the Rockport Plant is located in a floodplain.

A.K. Steel owns approximately 1,700 acres to the north of the Rockport Plant and has its steel processing plant located within this property. The remainder of the property surrounding the Rockport Plant is predominantly being used for row crop agriculture.

Based on the Study, only two property sales in the immediate area surrounding the Rockport Plant have taken place from October 1991 to July 2003 (i.e., the date the Study was issued). The sales data for these two transactions are provided in Table 4-6.

Table 4-6
Summary of Land Sales Near the Rockport Plant

Sales Date	Buyer	Land Size (acres)	Sales Price	Price per Acre
1996	AK Steel	1,700	$11,050,000	$6,500
1997	Fulkeson & Assoc., Inc.	77.89	$327,138	$4,200

According to the Study, both of these land sales were purchased for industrial purposes. In comparison, prices for row crop agricultural land in Spencer County typically range from $2,000 to $3,000 per acre, significantly less than the sales data presented in Table 4-6.

The Study, based on property values near the Rockport Plant, concluded that properties located adjacent to power plants tends to sell for more per acre than those that are not adjacent to power plants. As such, no negative impacts were identified as a result of the construction and operation of the Rockport Plant.

5.0 Noise Assessment

This section describes the potential for impacts due to noise emissions from the Trimble County Unit 2 Project (Project). Specifically, an introduction to acoustics, a description of the existing acoustical environment, an estimate of Project noise emissions during construction and operation, an impact assessment, and associated mitigation measures are provided.

5.1 Acoustical Terminology

Environmental sound levels are quantified by a variety of parameters and metrics. In order to aid the reader, this section introduces general concepts and terminology related to acoustics and environmental noise.

5.1.1 Sound Energy Characteristics

Sound energy is physically characterized by amplitude and frequency. Sound amplitude is measured in decibels (dB) as the logarithmic ratio of a sound pressure to a reference sound pressure (20 microPa). The reference sound pressure corresponds to the typical threshold of human hearing. Generally, the average listener considers a 3 dB change in a constant broadband noise "just barely perceptible". Similarly, a 5 dB change is generally considered "clearly noticeable" and a 10 dB change is generally considered a doubling (or halving) of the apparent loudness.

Frequency is measured in hertz (Hz), which is the number of cycles per second. The typical human ear can hear frequencies ranging from approximately 20 Hz to 20,000 Hz. Typically, the human ear is most sensitive to sounds in the middle frequencies (1,000 to 8,000 Hz) and is less sensitive to sounds in the low and high frequencies. As such, the A-weighting scale was developed to simulate the frequency response of the human ear to sounds at typical environmental levels. The A-weighting scale emphasizes sounds in the middle frequencies and de-emphasizes sounds in the low and high frequencies. Any sound level to which the A-weighting scale has been applied is expressed in A-weighted decibels, dBA. For reference, the A-weighted sound pressure levels associated with some common noise sources are shown in Table 5-1.

Table 5-1

Typical Sound Pressure Levels Associated with Common Noise Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Environment	
		Outdoor	Indoor
140	Deafening	Jet aircraft at 75 ft	
130	Threshold of pain	Jet aircraft takeoff at 300 ft	
120	Threshold of feeling	Elevated Train	Rock band concert
110	Extremely Loud	Jet flyover at 1000 ft	Inside propeller plane
100	Very Loud	Motorcycle at 25 ft, auto horn at 10 ft, crowd noise at football game	
90	Very Loud	Propeller plane flyover at 1000 ft, noisy urban street	Full symphony or band, food blender, noisy factory
80	Moderately Loud	Diesel truck (40 mph) at 50 ft	Inside auto at high speed, garbage disposal, dishwasher
70	Loud	B-757 cabin during flight	Close conversation, vacuum cleaner, electric typewriter
60	Moderate	Air-conditioner condenser at 15 ft, near highway traffic	General office
50	Quiet		Private office
40	Quiet	Farm field with light breeze, birdcalls	Soft stereo music in residence
30	Very quiet	Quiet residential neighborhood	Bedroom, average residence (without t.v. and stereo)
20	Very Quiet	Rustling leaves	Quiet theater, whisper
10	Just audible		Human breathing
0	Threshold of hearing		

Source: Adapted from Architectural Acoustics, M. David Egan, 1988 and Architectural Graphic Standards, Ramsey and Sleeper, 1994.

5.1.2 Environmental Noise Metrics

Noise in the environment is constantly fluctuating, such as when a car drives by, a dog barks, or a plane passes overhead. Several noise metrics have been developed to quantify fluctuating noise levels. These metrics include the equivalent-continuous sound level and the exceedance sound level.

The equivalent-continuous sound level, L_{eq}, is the level of a hypothetical steady sound that has the equivalent sound energy as the actual fluctuating sound over a given time duration. For example, $L_{eq}(1h)$ is the equivalent-continuous sound level measured over a one-hour period and provides an indication of the average sound energy over the one-hour period.

The exceedance sound level, L_x, is the sound level exceeded "x" percent of the sampling period and is referred to as a statistical sound level. The most common L_x values are L_{90}, L_{50}, and L_{10}. L_{90} is the sound level exceeded 90 percent of the sampling period. L_{90} is often referred to as the residual sound level because it measures the background sound level without the influence of loud, transient noise sources. L_{50} is the sound level exceeded 50 percent of the sampling period or the median sound level. L_{10} is the sound level exceeded 10 percent of the sampling period. L_{10} is often referred to as the intrusive sound level because it measures the occasional louder noises.

The variation between the L_{90}, L_{50}, and L_{10} sound levels can provide an indication of the variability and distribution of the noise environment. If the noise environment were perfectly steady, all values would be identical. A large variation between the values would indicate a large range of sound levels within the environment. For instance, measurements near a roadway with frequent passing vehicles would cause a large variation in the statistical sound levels.

5.2 Human Response to Noise

Noise is often considered unwanted sound. However, human response to noise is complex and is influenced by a variety of acoustic and non-acoustic factors. Acoustic factors generally include the sound's amplitude, duration, spectral content, and fluctuations. Non-acoustic factors typically include the listener's ability to become used to the noise, the listener's attitude towards the noise and the noise source, the listener's view of the necessity of the noise, and the predictability of the noise. As such, response to noise is highly individualized.

5.3 Applicable Noise Regulations

Based on the information provided, there are no state, county, or local noise regulations that are applicable to this project. In the absence of specific regulations, guidelines established by EPA can be considered.

5.3.1 Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has identified yearly day-night average sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [EPA Pub. No. 550/9-77, April 1977]. According to the EPA, yearly levels are sufficient to protect public health and welfare if they do not exceed an L_{dn} of 55 dBA outdoors in sensitive areas such as residences, schools, and hospitals. The day-night sound level, L_{dn}, is the 24-hour average sound level with a 10 dB penalty applied to the nighttime sound levels (10:00 p.m. to 7:00 a.m.) to account for increased sensitivity to noise during nighttime hours. As such, this equates to a constant sound level of 55 dBA during daytime hours and 45 dBA during nighttime hours.

The EPA emphasizes that since the protective sound levels were derived without concern for technical or economic feasibility, and contain a margin of safety to ensure their protective value, they must not be viewed as standards, criteria, regulations, or goals. Rather, they should be viewed as levels below which there is no reason to suspect that the general population will be at risk from any of the identified effects of noise. Additionally, the EPA has no authority to regulate ambient noise levels.

5.4 Existing Acoustical Environment

In order to characterize the existing acoustical environment surrounding Trimble County Station (Station which encompasses the Project site), an ambient sound level survey was conducted. This section describes the results of the survey and the nature of the existing acoustical environment surrounding the project site.

5.4.1 General Community Noise

The existing acoustical environment around the Project site is typical of predominantly rural communities. The primary sources of noise include natural sounds and occasional traffic. The primary sources of natural noise include insects, birds, and dogs. Areas immediately surrounding the existing Station experience noise associated with the continuous operation of Unit 1. In addition, the peaking units located on the southern portion of the site operate on occasion and contribute to the acoustical environment. In general, with the exception of the nearest residences located south of the Station, noise from Unit 1 ranges from inaudible to noticeable at the scattered residences in the surrounding area.

5.4.2 Survey Procedure and Conditions

The ambient sound level survey was conducted between March 8 and 10, 2004, to characterize the existing acoustical environment at nearby noise sensitive receptors. The ambient sound level survey procedure was based on general industry test standards including ANSI S12.9 and ANSI S1.13. In order to effectively quantify and qualify the existing daily sound levels, the ambient survey included both continuous monitoring and short-term measurements. The survey was conducted during normal operation of the existing facility, which involves the operation of Unit 1. Unit 1 is a base load unit and typically operates continuously.

A supplemental sound level survey was conducted on March 22, 2004, to qualify and quantify the noise associated with the existing facility during a period when the existing simple-cycle combustion turbine units were operating to meet peak load demands. The simple cycle combustion turbine units typically operate only in those instances when peak capacity is required, primarily during daytime hours of the warmer summer months.

The sound level survey was conducted at six locations surrounding the existing Station. These locations were selected to capture acoustical environments representative of the nearby noise-sensitive receptors (i.e., residences) and to capture the existing sound levels at various points near the plant boundary and fence line. Each measurement location is identified in Figure 5-1 and described in Table 5-2. Locations at noise-sensitive receptors are designated as "NML" and locations at the plant boundary are designated as "P". Photographs depicting the view of the facility from each location are included in Appendix B.

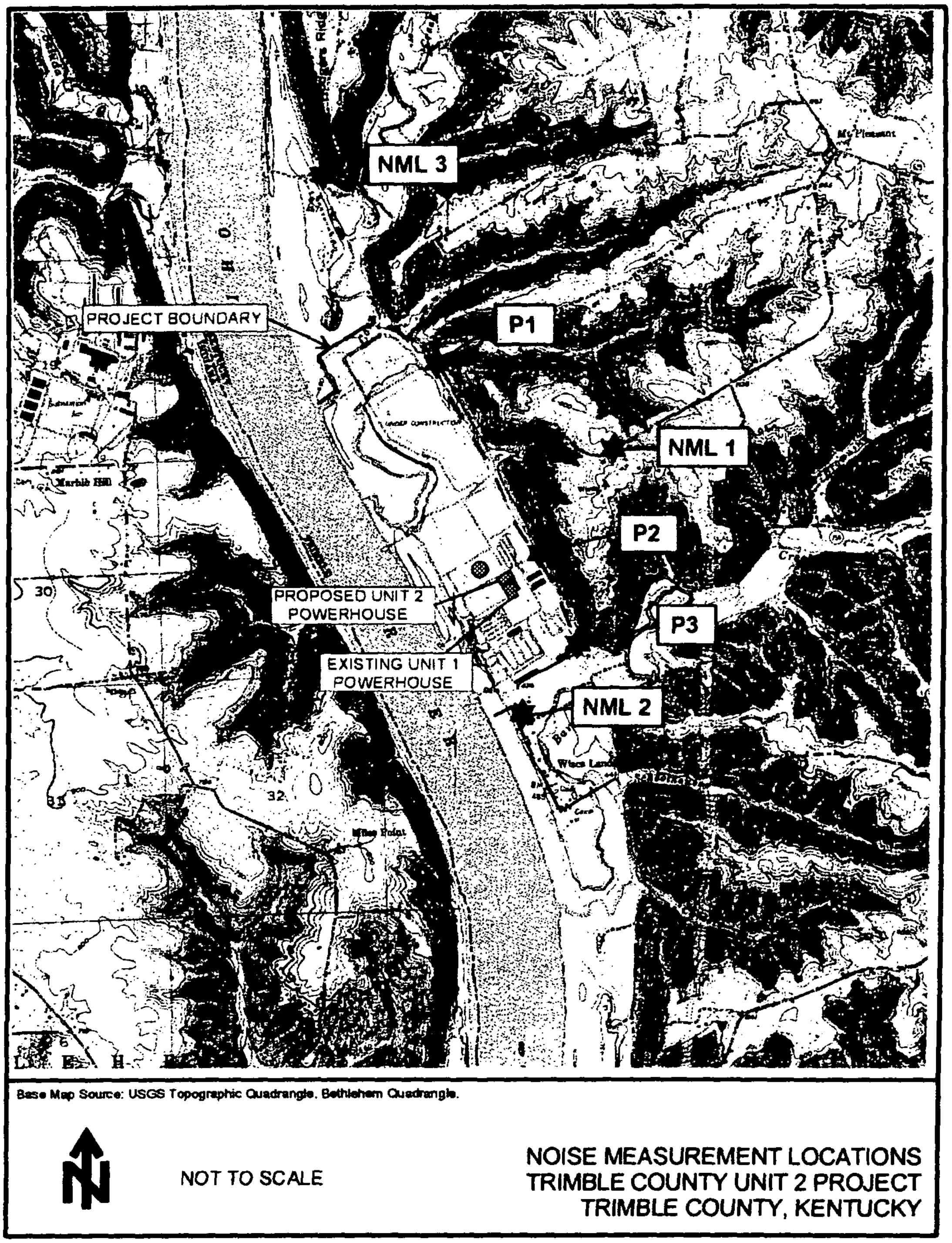


Figure 5-1
Noise Measurement Locations (NMLs)

Table 5-2
Noise Measurement Locations

Location	Approximate Distance from the Unit 2 Power Building (feet)	Description	Continuous Monitoring	Short-term Measurements
NML-1	4,000	East of the facility near the driveway of 1970 Ogden Ridge Road just outside the small cemetery.	X	X
NML-2	3,000	Near the nearest residence south of the facility on Wises Landing Road.	X	X
NML-3	10,500	Near the residences on Watson Landing, approximately 1.5 mile north of the existing cooling tower.	X	X
P1	5,300	Near the northern fence line, approximately one mile north of the existing cooling tower and on Highway 1838.		X
P2	800	Near the main plant entrance, on Highway 1838.		X
P3	2,100	Near the south plant entrance gate, on Highway 1838.		X

Weather conditions during the March 8 - 10, 2004, survey were favorable for sound level measurements. Temperatures ranged from approximately 37 to 56 °F and the relative humidity ranged from approximately 40 to 66 percent. Winds during the initial 36 hours (approximately) were generally out of the north at 2 to 5 mph and skies were overcast. The latter stages of the survey included mild breezes out of the south from 0 to 3 miles per hour and clear skies.

Weather conditions during the March 22, 2004, survey were also favorable for sound level measurements. Temperatures ranged from approximately 33 to 36 °F and the relative humidity ranged from approximately 36 to 38 percent. Winds were generally out of the north at 1 to 5 mph and skies were mostly sunny with some scattered clouds.

All sound level measurements were conducted using either a Type 1 or 2 sound level meter that met the requirements of ANSI S1.4. The sound level meters had integrating capabilities to determine the average and statistical sound levels over a specified duration. The microphones were equipped with windscreens provided by the manufacturer. The equipment is listed in Table 5-3 and calibration certification is provided in Appendix C of this report.

Table 5-3 Noise Emissions Performance Test Equipment		
Model	**Serial Number**	**Last Calibration Date**
Rion Model NA-27	01191119	11/4/2003
Rion Type UC-53 Microphone	99858	11/4/2003
Norsonic Type 1251 Acoustic Calibrator	25762	11/4/2003
Rion Model NL-22	01110135	11/24/2003
Rion Model NL-22	01110133	11/24/2003
Rion Model NL-22	01110122	11/24/2003
Rion Model NC-73 Acoustic Calibrator	10527795	11/25/2003

5.4.3 Continuous Monitoring

Continuous noise monitoring was conducted at residential locations NML-1, NML-2, and NML-3 for approximately 48 hours to capture typical ambient daytime and nighttime sound levels. The measurements included the L_{eq}, L_1, L_{10}, L_{50}, and L_{90} sound pressure levels. The results of the continuous monitoring provided an indication of the daily trends in the ambient sound level. During this 48-hour monitoring period, Unit 1 was operating under normal conditions and the simple cycle combustion turbine peaking units were not operating.

The continuous noise monitoring results are detailed in Table 5-4 and Figure 5-2, which depict the L_{10}, L_{50}, and L_{90} hourly sound levels during the 48-hour period at each residential location. As previously discussed, the L_{90} sound level is generally considered representative of the residual or background sound level (i.e., without discrete noise events such as traffic, aircraft, dogs, etc.), the L_{50} sound level is considered the median sound level, and the L_{10} sound level is generally considered the intrusive sound level (i.e., with the occasional discrete events such as traffic, aircraft, etc.).

The continuous monitoring results indicated that the quietest times of the day occur during nighttime hours when predominant noise sources are at a minimum, as expected. It is important to note that during the monitoring period, Unit 1 was continuously operating and therefore always part of the ambient acoustical environment. At the three monitoring locations, the average hourly background sound levels (L_{90}) ranged from 27 dBA to 44 dBA, and the quietest hourly background sound levels (L_{90}) ranged from 18 dBA to 41 dBA. In general, the quietest background sound levels are consistent with rural locations that are located remote from highways and other main arterials during very calm weather conditions.

Table 5-4
Continuous (48-hour) Monitoring Results

Location	Hourly Exceedance Sound Levels, dBA			
		L_{90} (Background)	L_{50} (Median)	L_{10} (Intrusive)
NML-1	Maximum	40	47	57
	Average (Median)	30	36	43
	Minimum (Quietest)	21	22	26
NML-2	Maximum	55	63	70
	Average (Median)	44	47	52
	Minimum (Quietest)	41	43	45
NML-3	Maximum	38	42	51
	Average (Median)	27	32	44
	Minimum (Quietest)	18	18	30

Location 1 (NML-1) – Location 1 is representative of the nearest residential neighbors located approximately 4,000 feet east of the facility in an area of terrain elevated above the facility. The quietest background periods occurred during the early morning hours from about 12:00 AM to 5:00 AM. The quietest of the early morning hours occurred during periods of no wind. On one occasion, Unit 1 was just barely audible, but generally Unit 1 was inaudible at this location.

Location 2 (NML-2) – Location 2 is representative of the nearest residential neighbors located approximately 3,000 feet south of the facility in the Wises Landing area. The quietest background periods occurred during the late morning hours as well as the early morning hours. Unit 1 was clearly audible at this location. In addition, this location was significantly influenced by noise from heavy truck traffic along Wises Landing Road (as evident from the high L_{10} sound level) and, at other times, by noise from barge traffic on the Ohio River and by nearby agricultural activities.

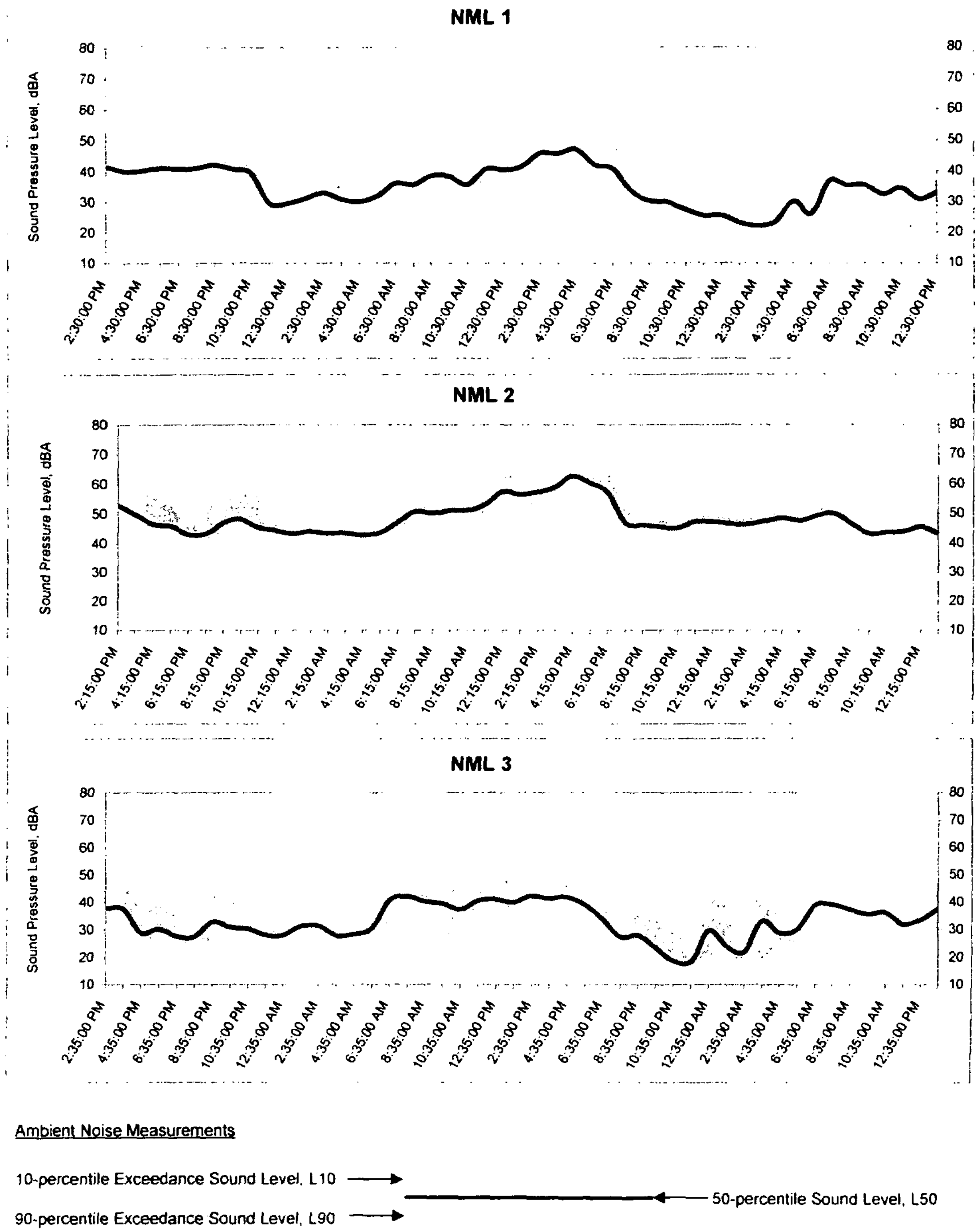


Figure 5-2
Results of 48-hour Continuous Noise Monitoring

Location 3 (NML-3) – Location 3 is representative of the nearest residential neighbors located approximately 10,500 feet north of the facility along Watson Landing Road. The quietest background periods occurred during the late night and early morning hours. While the Unit 1 stack and cooling tower were visible from this location, the facility was inaudible at this location. This location was also influenced by noise from occasional barge traffic on the Ohio River and from occasional distant aircraft.

5.4.4 Short-Term Measurements

In addition to the continuous monitoring, manned, short-term noise measurements were conducted at each monitoring location as well as additional locations along the facility property boundary and fence line. The short term measurements supplemented the monitoring results by providing additional information. Specifically, these measurements helped to qualify the surrounding noise sources and provided an indication of the spectral content of the existing acoustical environment. The measurement periods ranged from 10 to 15 minutes as necessary to capture sound levels representative of the location.

The short-term measurement results for each location are listed in Table 5-5 and are detailed in Figures 5-3 through 5-8. The results listed in Table 5-5 are consistent with the continuous monitoring results previously discussed. The figures show the background (L_{90}) octave band sound pressure levels for each location at varying times throughout the day. The locations along the facility fence line indicate some tones in the 63 Hz and 125 Hz third-octave bands. These tones are associated with some unidentifiable facility equipment operating during the nighttime period.

5.4.5 Simple-Cycle Combustion Turbine (Peaker Unit) Operations

A supplemental sound level survey was conducted on March 22, 2004 to qualify and quantify the noise associated with the existing facility during a period when two simple-cycle combustion turbine units were operating simultaneously with Unit 1. The simple-cycle combustion turbine units operate only in those instances when peak capacity is required, which typically occurs during daytime hours in the summer months. There are a total of six simple-cycle combustion turbine units available for peak operation.

Table 5-5 Short-term Measurement Results						
Location	Measured Sound Levels, dBA					
	Time	Duration (min)	L_{90}	L_{50}	L_{10}	Audible Sources
NML-1	5:29 PM	15	33	38	43	Birds, distant aircraft, breeze in trees. Facility inaudible.
	12:36 AM	10	24	26	34	Distant aircraft, barking dogs. Facility inaudible.
	11:13 AM	15	28	32	38	Birds, distant aircraft. Facility very faintly audible.
NML-2	4:02 PM	15	48	51	55	Facility (Unit 1), birds, breeze in trees, traffic (heavy truck).
	2:03 AM	10	48	49	50	Facility (Unit 1), distant aircraft, distant truck traffic, barking dog.
	12:58 PM	15	44	47	55	Facility (Unit 1), birds, construction activities Units 7 – 10, barge, local traffic (1 auto, 1 heavy truck).
NML-3	5:01 PM	15	37	43	49	Breeze. Facility inaudible.
	1:02 AM	10	29	36	44	Barge, distant aircraft. Facility inaudible.
	11:41 AM	15	26	30	37	Birds, distant aircraft, breeze in trees. Facility very faintly audible.
P1	1:18 AM	10	32	34	39	Facility (Unit 1), distant aircraft.
	12:02 PM	15	30	34	47	Breeze in trees, distant aircraft, birds, local traffic (3 autos, 1 heavy truck), facility (Unit 1).
P2	1:35 AM	10	59	60	60	Facility (Unit 1).
	12:21 PM	15	56	57	61	Facility (Unit 1), local and facility traffic (7 vehicles total).
P3	1:49 AM	10	52	52	53	Facility (Unit 1).
	12:39 PM	15	45	47	59	Facility (Unit 1), construction activities Units 7 -10, local traffic (4 autos, 7 heavy trucks), transmission line buzz.

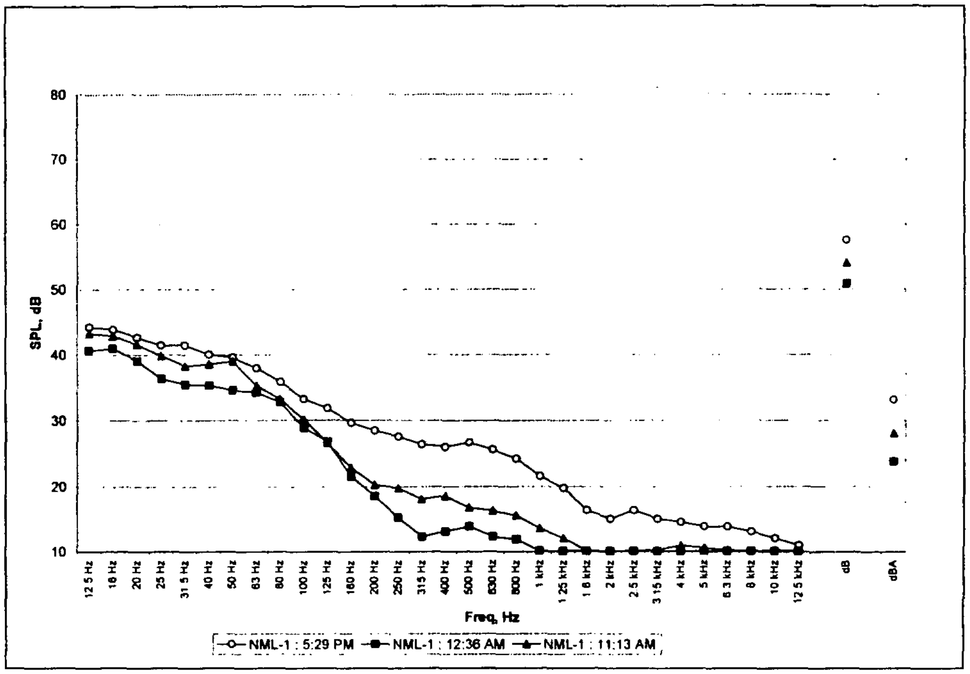


Figure 5-3
NML-1: Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

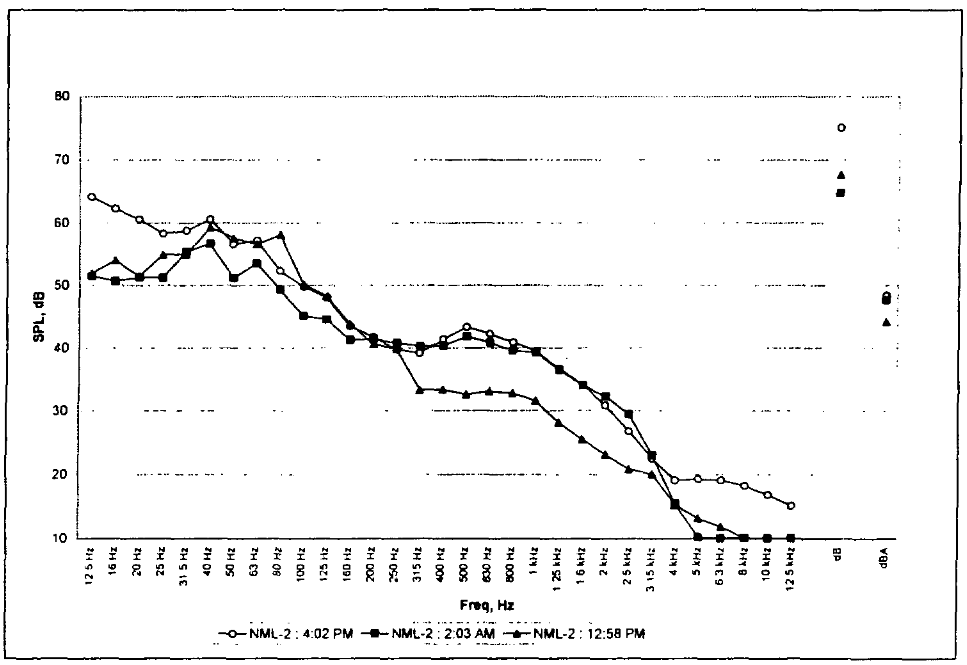


Figure 5-4
NML-2: Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

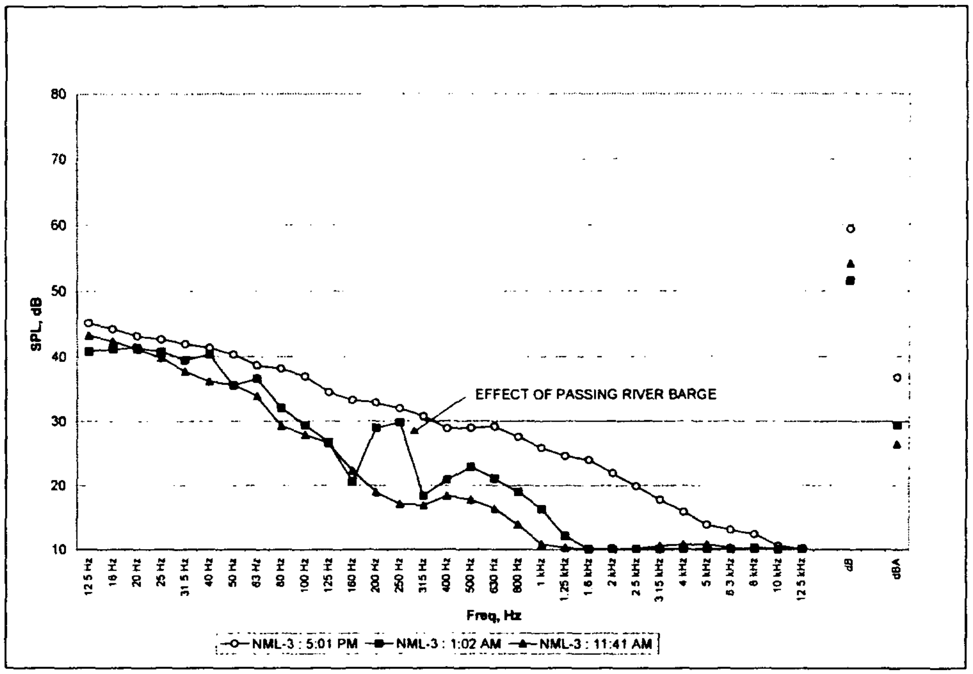


Figure 5-5
NML-3:Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

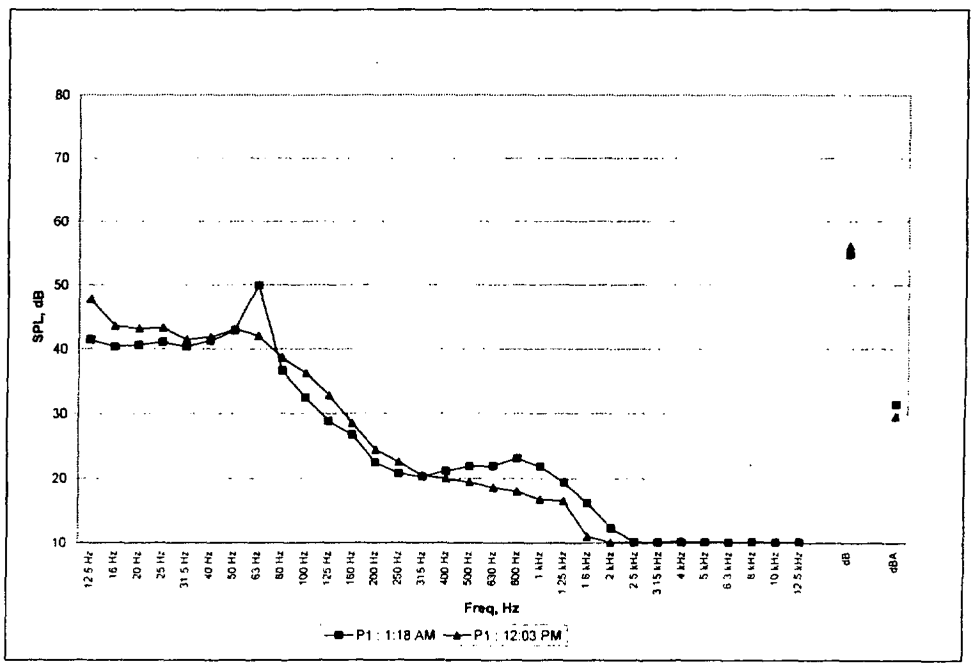


Figure 5-6
P1: Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

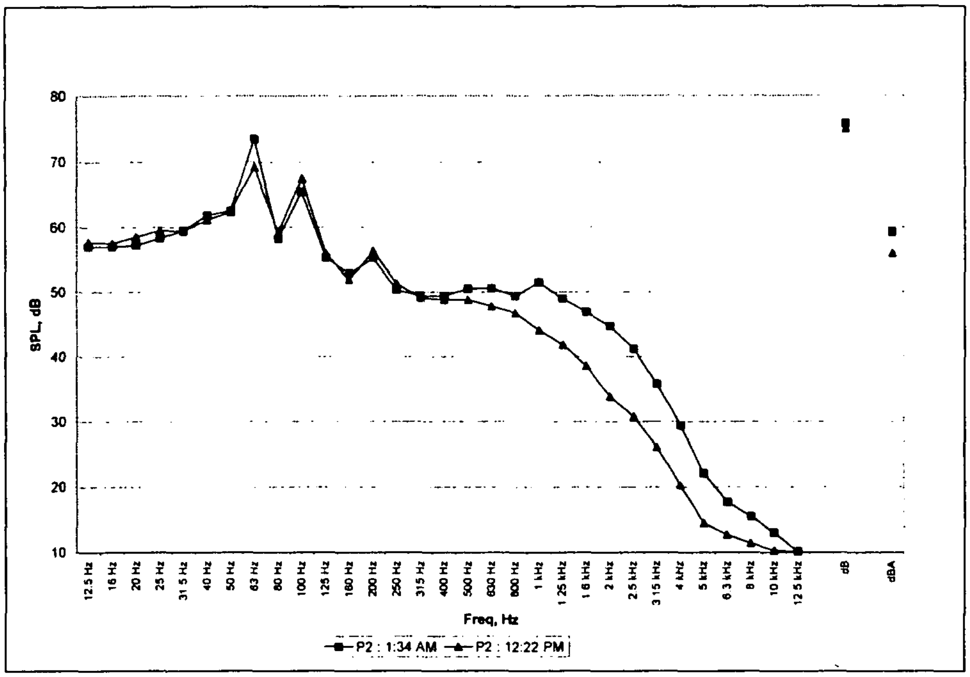


Figure 5-7
P2: Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

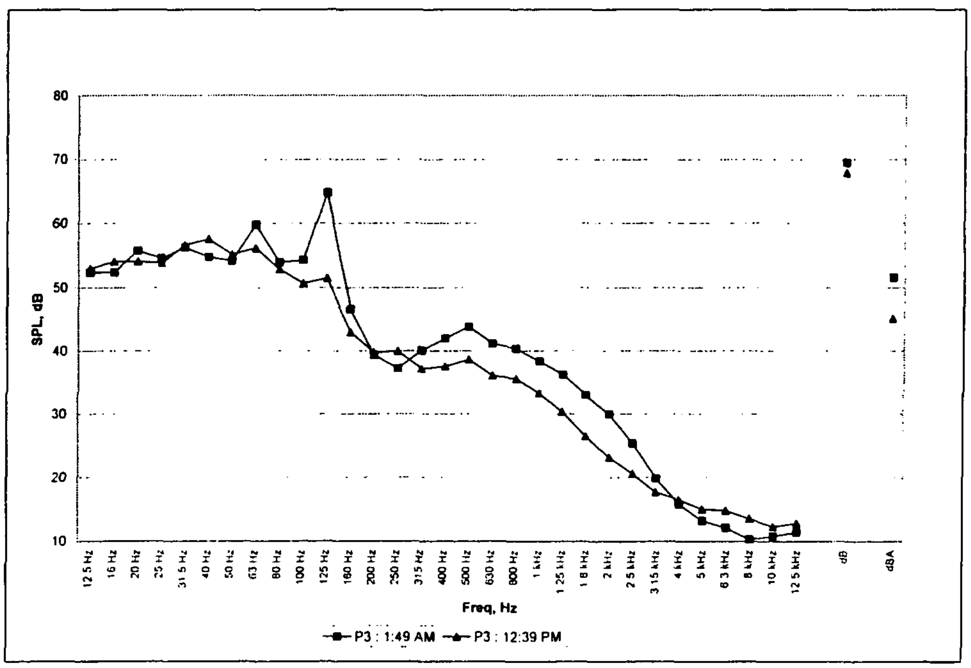


Figure 5-8
P3: Measured Background One-Third Octave Band Sound Pressure Levels (L_{90})

For this survey, the same measurement locations were utilized. The results of the survey during simultaneous operation of Unit 1 and two peaker units are listed in Table 5-6. A comparison of Tables 5-5 and 5-6 indicates that the operation of the two peaker units does not measurably increase the sound levels at most of the receptor locations compared to those times during the operation of Unit 1 only. The receptor location NML-2 as well as the fence line location P3 both exhibited an increase due to the close proximity of the combustion turbine peaker units. NML-2 and P3 data indicated increases in the background sound levels of approximately 6 to 10 dB depending on the ambient conditions. It should be emphasized that the peaker units typically only operate occasionally during the high-demand summer daytime hours.

Table 5-6
Measurements during Simultaneous Operation of Unit 1 and two Peaker Units

Location	*Measured Sound Levels, dBA*					
	Time	Duration (min)	L_{90}	L_{50}	L_{10}	Audible Sources
NML-1	7:36 AM	15	33	37	45	Birds, distant aircraft, barking dogs, facility.
NML-2	9:24 AM	15	54	56	58	Facility (including peaker units), birds.
NML-3	8:04 AM	15	34	37	43	Birds, barking dogs. Facility inaudible.
P1	8:24 AM	15	31	35	45	Local traffic (1 auto, 1 heavy truck), birds, facility.
P2	8:47 AM	15	55	56	58	Facility, birds, local traffic. Peaker units not discernible over Unit 1.
P3	9:05 AM	15	54	55	58	Peaker units, Unit 1, local truck traffic.

5.5 Environmental Noise Emissions

The environmental noise emissions include the noise emitted by the facility to the surrounding community.

5.5.1 Noise Modeling Methodology

The environmental noise emissions were modeled using noise prediction software (CadnaA version 3.3.107). The model simulated the outdoor propagation of sound from each noise source and accounted for sound wave divergence, atmospheric and ground sound absorption, sound directivity, and sound attenuation due to interceding barriers. A database was developed which specified the location, octave band sound levels, and sound directivity of each noise source. A receptor grid was specified which covered the entire area of interest. The model calculated the overall A-weighted sound pressure levels within the receptor grid based on the octave band sound level contribution of each noise source. Finally, a noise contour plot was produced based on the overall sound pressure levels within the receptor grid, including specific receptor locations.

Noise modeling was conducted to predict the environmental noise emissions during normal facility operation, which excludes intermittent activities such as start-up, shut down, and any other abnormal or upset operating conditions.

5.5.2 Equipment Noise Sources

Based on the conceptual power block plan, the Project will include the installation of one coal-fired boiler unit in conjunction with one steam turbine generator. In addition, the Project will include an eleven-cell mechanical draft cooling tower, air quality control, generator step-up transformer, induced draft fans, forced draft fans, major pumps (e.g. boiler feedwater, circulating water, etc), and other associated equipment.

The existing hyperbolic cooling tower and existing dual-flue exhaust stack were designed to support two 500 MW coal-fired units. As such, the proposed Unit 2 will utilize the existing hyperbolic cooling tower and the existing stack structure for cooling and for exhausting. The proposed mechanical draft cooling tower will provide cooling for the existing Unit 1. Also, a third flue will be added to the existing stack to handle the added exhaust flow.

Equipment sound levels were based on a combination of available in-house data and data provided by the Edison Electric Institute (EEI) in the *Electric Power Plant Environmental Noise Guide* (1984).

5.5.3 Facility Noise Emissions

The predicted facility noise emissions are included in Figure 5-9 at the end of this section. As shown in Figure 5-9, the facility sound levels range from 38 dBA to 53 dBA along the property boundary and are generally consistent with existing conditions (i.e., operation of Unit 1).

In order to evaluate the potential noise impacts on the surrounding noise sensitive receptors, the predicted facility sound levels were compared to the measured background sound levels in Table 5-4. Based on the noise model, the increase in the existing background sound level due to the operation of the facility is expected to range from approximately 1 to 10 dB compared to the average background sound levels measured during the survey. The largest increase is anticipated to occur at the residences east (NML 1) of the facility site. For reference, a 10 dB increase is typically perceived by the average listener as a doubling of the loudness. The increases at NML 2 and NML 3 are estimated to be 3 dB and 1 dB, respectively. For reference, a 3 dB increase is typically perceived by the average listener as just barely perceptible. In addition, a typical listener will not notice a 1 dB change in sound level.

It is important to note that due to the conservative nature of the noise model (e.g., wind conditions, ground attenuation, equipment sound level assumptions, etc.) and the impracticality of exactly mimicking "real-life" conditions (e.g., terrain, vegetation, meteorology, etc.), it is expected that the noise emissions from Unit 2 could be quieter than the model predicts and very similar to the noise emissions from Unit 1. In other words, although the noise model indicates a 10 dB change in the background sound level at NML 1, it is unlikely that Unit 2 will increase the background sound to this degree based on sound level measurements of Unit 1 during the ambient noise survey. Sound level measurements at NML 1 during operation of Unit 1 indicate that the facility was inaudible during most times of the day. As such, since Unit 2 is similar to Unit 1 (both coal-fired boilers), the noise emissions associated with the normal operation of Unit 2 should also be similar to the noise emissions during normal operation of Unit 1. In addition and for informational purposes, when two similar sources are equidistant from a

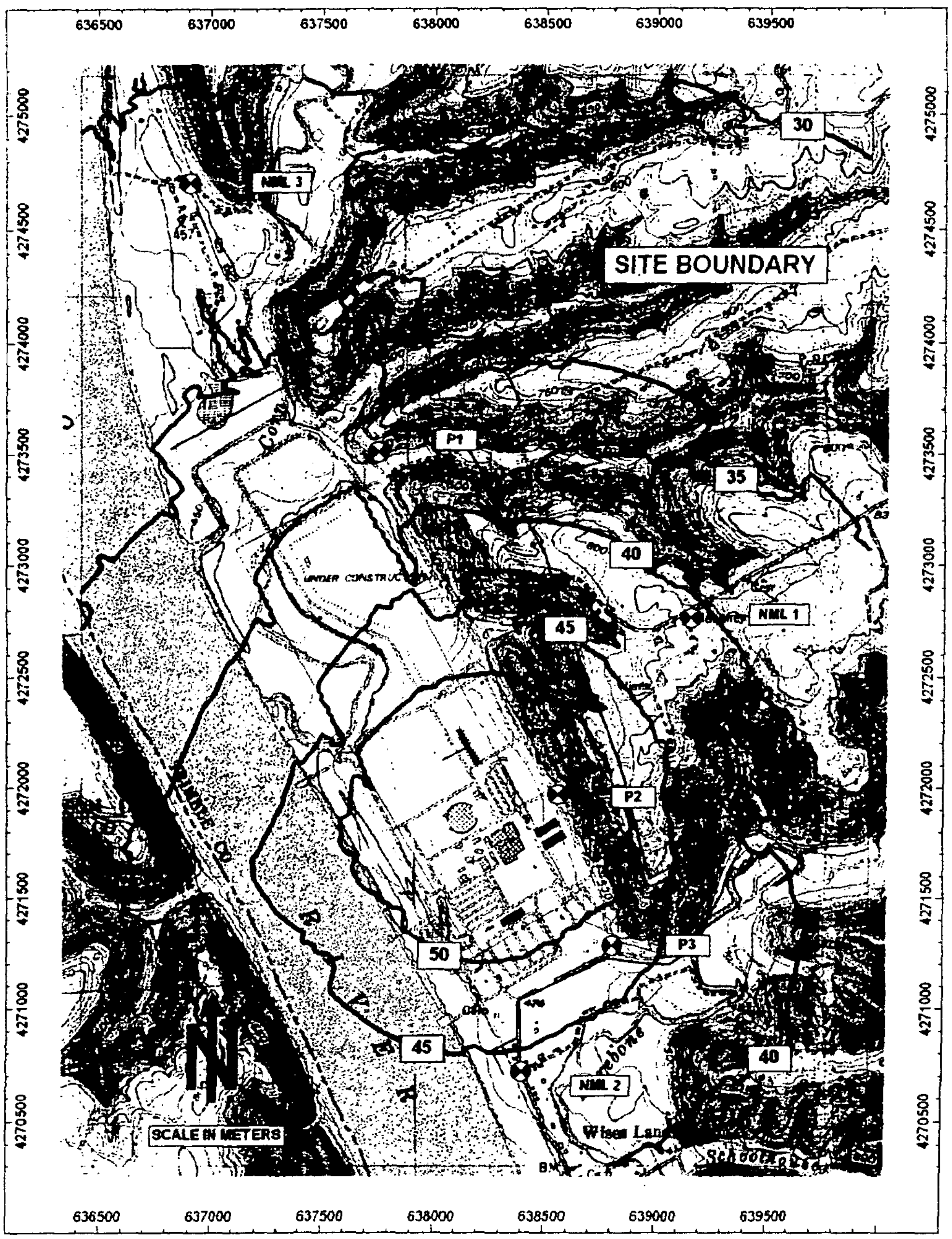


Figure 5-9
Estimated Facility Noise Emissions

receptor point, the second unit will typically increase the sound level by 3 dB due to the logarithmic nature of sound propagation.

Since Unit 1 is a base load facility and operates continuously, it was not possible to measure background sound levels during a period when Unit 1 was not operating. However, during the sound level survey, Unit 1 was largely inaudible at NML 1 and NML 3. As a result, it is expected that the Project noise emissions will likely be inaudible during certain times of the day. The combined noise from both units operating simultaneously, therefore, is not expected to be significant and may not even be noticeable under most conditions. Furthermore, the predicted facility noise emissions at NML 1 are below the 55 dBA (L_{dn}) established by EPA.

Wind direction and speed, as well as other environmental and natural conditions, may cause the noise emissions from the operation of both units to be audible at the nearest receptors at certain times. However, the overall impact to the background sound levels at the nearest receptors (NMLs 1, 2, and 3) associated with the addition of the Project is generally expected to be insignificant, as evidenced by the fact that Unit 1 was largely inaudible at these locations during the noise survey.

5.5.4 Emergency and Upset Operating Conditions

During intermittent operations such as start-up, shutdown, and upset conditions such as emergency steam release, environmental noise emissions from the facility may exceed the sound pressure levels experienced during normal operation. Facility noise emissions will vary depending on the upset condition but will be relatively short in duration. In addition, since the Project is designed to be a base load facility, it is not expected to operate under start-up or shut-down conditions except during planned outages for maintenance which will take place approximately two times per year.

5.6 Construction Noise Emissions

Major construction phases will consist of mobilization/site preparation, foundation construction, equipment installation, building structure erection, and site cleanup/demobilization. Noise emissions will vary with each phase of construction depending on the construction activity and the associated equipment.

Project construction will require the use of internal combustion engine powered equipment. This equipment will include backhoes, scrapers, dump trucks, barges, graders, cranes, front end loaders, etc. Noise emissions during this construction phase will be dominated by the engine noise.

Construction activities will be scheduled during daytime and evening periods (7:00 a.m. to 10:00 p.m.) to the fullest extent possible. Some activities may require extended hours of operation due to scheduling constraints. Any nighttime construction will be limited to low noise activities to the fullest extent possible.

5.7 Mitigation

Since no significant impacts are expected to result from the construction or operation of Unit 2, no significant mitigation is anticipated to be required. Construction noise will be limited by use of properly maintained equipment with engine mufflers and limiting construction activity to daytime hours.

Operational noise will be limited since the major new noise sources (boiler and turbine) are located indoors, similar to the existing unit, and by utilizing the existing ancillary equipment that was originally designed for two units. Increased load on the ancillary equipment is not expected to have any significant impact on facility noise emissions. In addition, operational noise will be limited by specifying low-noise equipment and including noise attenuation as needed to be consistent with Unit 1 noise emissions.

6.0 Traffic Assessment

This section describes the local roadways in the Project vicinity and the potential impacts that could result from the construction and operation of the Project. Since the project is located near the Ohio River, potential impacts to the barge system are also discussed.

6.1 Local Roadways

Access to the Trimble County Station will be via Highway 1838, which is due west of Bedford, Kentucky. Highway 1838 is a two lane, non-divided highway and provides direct access to the site from both the north and south. Traffic access to Highway 1838 will primarily be from Highway 754 out of Bedford. Secondary access to Highway 1838 will be from the north, via Highway 625. Figure 6-1, included at the end of this section, shows the roadways surrounding the Project site.

U.S. Highway 421 and U.S. Highway 42 are the main highways that accommodate travel through Trimble County and an interchange with Highway 754 facilitates access to the plant. According to the Kentucky Transportation Cabinet's Department of Highways, existing traffic counts on this section of Highway 1838 are approximately 725 vehicles per day, with an hourly peak volume of 79 vehicles per hour. Highway 1838 is designed for 3,200 vehicles per hour according to the Transportation Research Board. The plant is located to the west of Highway 1838 and there are two existing plant access roads (Gates 1 & 3) that connect with Highway 1838. There is also one access road (Gate 2) that connects to Highway 754. In addition, there are three access roads from Highway 1838 to three parking lots which are designated for construction craft parking. Consequently, the existing roads will adequately accommodate both construction and plant traffic.

6.1.1 Potential Impacts from Construction Activities

Site labor is projected to peak at approximately 1,200 personnel in Month 11 of the project. A "rule of thumb" on similar construction projects is that approximately 70 percent of the personnel will drive their vehicle to the site and the remaining 30 percent will carpool and be contained within that 70 percent. This resulting volume is (1,200 x 0.70 = 840) approximately 840 vehicles entering and leaving the site, at the peak. The standard work week will include five 10-hour days and the site-generated traffic will most likely occur prior to 7:00 a.m. and after 5:30 p.m. Thus, the majority of construction related traffic will travel the roads before and after the typical peak hours of traffic on the existing road network. An onsite contractor's parking area has already been established for current construction activities. Therefore, the construction workforce on the Project will utilize this existing parking area.

It is worth noting that there may be variations in the number of construction personnel and their associated work schedule. This may result in extended work hours, as well as different shifts, to satisfy emerging schedule issues. This is expected to impact only a small fraction of the total workforce.

Also, during startup and testing, the startup team will be working shifts and extended hours as required in support of plant requirements. This again will be a reduced workforce staffed to meet plant completion requirements.

Truck traffic is expected to be approximately 27 trucks per day at the peak of delivery. These deliveries include mechanical equipment, electrical equipment and supplies, concrete and steel. This peak would be expected to occur approximately two to four months prior to the manpower peak (Months 11- 13). In addition, there could be an occasional heavy haul truck delivery of generators, turbines, transformers, etc. However, delivery of most heavy haul items will be via barge. There is no rail service to the plant site, thus delivery of equipment and materials is only viable by trucks and barges.

Various service and support vendors will be entering and exiting the site as well. These include portable restrooms, telephone, copy machines and other support services. It is expected that approximately 30 of these types of site visits will occur each day during peak manpower periods.

Construction personnel will generate the most traffic. During the peak manpower period, it is assumed that there will be a total of 900 construction related vehicles entering and leaving the site on a daily basis. Therefore, the total volume of traffic on Highway 1838 will be 2,525 vehicles per day (900 morning + 900 evening + 725 existing).

In terms of hourly volume, the existing AM and PM peak hour traffic on Highway 1838 is 68 and 79 vehicles per hour respectively, according to data obtained from the Kentucky Transportation Cabinet-Department of Highways.

Conservatively, assuming that all construction related traffic occurs at times concurrent with existing peak hours of traffic, the results of construction activity will yield two-way construction related traffic volume of 968 (900+68) vehicles per hour for the AM peak and 979 (900+79) vehicles per hour for the PM peak. Highway 1838's two-way capacity is 3,200 vehicles per hour. Furthermore, assuming a 90/10 directional split of traffic (skewed by construction), the peak hour one-way traffic volume during construction would be 871 and 881 vehicles per hour in the AM and PM hours, respectively. The one-way capacity of Highway 1838 is 1,700 vehicles per hour. Therefore, the construction generated traffic plus existing traffic are well below the capacity of the highway and no significant impacts on the highway are anticipated.

6.1.1.1 Fugitive Dust. Fugitive dust emissions will probably be most noticeable during construction. Dust will be associated with ground excavation, cut-and-fill operations, and other activities. The amount of dust will vary from day to day, depending on the level of activity and the weather.

Access throughout the plant site will be by use of existing paved roads. These roads provide direct access to locations of construction activities and therefore fugitive dust emissions should be minimized from onsite traffic.

6.1.1.2 Road Degradation. Heavy haul equipment such as the boiler components, steam turbine components, and transformers are expected to be delivered by barge. As such, equipment and supplies delivered by trucks using the local roadways are not expected to include oversized loads. Therefore, damage to the local roadways due to overloading is not expected.

As previously noted, the anticipated construction traffic volume is within the capacity of the local roadways. As such, road degradation is not expected to occur as a result of overuse of the local roadways.

6.1.2 Potential Impacts from Plant Operation

During plant operation, the main traffic contributor is expected to be plant personnel. A minor contributor will include service personnel and infrequent vendor and/or contractor plant visits. Currently, the plant employs 98 people and they are in the process of hiring 5 additional personnel. Once Unit 2 goes on-line, the plant will employ approximately 140 people. Plant personnel will generate approximately 100 vehicles per day entering and exiting the plant.

The plant uses ammonia in its air quality control equipment. Ammonia is therefore delivered to the site during the May-September "Ozone" season. In addition, there will be regular shipments from the site of fly ash, bottom ash and gypsum. All of the above mentioned materials will be delivered by truck. The number of truck deliveries of these materials is expected to double that which is received prior to the addition of Unit 2. The total number of expected truck deliveries is 125 per day.

Again, conservatively assuming that all plant traffic occurs at times concurrent with existing peak hours of traffic, the results of operating the improved facility will yield a two-way traffic volume of 293 (68+100+125) vehicles per hour for the AM peak and 304 (79 +100+125) vehicles per hour for the PM peak. As noted above, Highway 1838's two-way capacity is 3,200 vehicles per hour. This capacity will be sufficient to handle the maximum anticipated traffic of 304 vehicles per hour as a result of plant operation and existing conditions. As such, no negative impacts regarding traffic are anticipated.

A rural two-lane highway typically has a 60/40 directional split of traffic. Again, conservatively assuming that all plant operation traffic will occur during the existing peak hours of traffic, the project will yield a one-way operation plus existing traffic volume of 176 and 182 vehicles per hour in the AM and PM peak hours, respectively. Highway 1838's one-way capacity is 1,700 vehicles per hour and therefore the increased plant operation traffic will have no negative impact to the existing roadways.

6.2 Barge Traffic

Barge access to the site is via the Ohio River along the Indiana/Kentucky border. It is anticipated that coal and limestone will be delivered by barge. Material deliveries for the construction of the Project will be delivered by truck and heavy/large equipment will be delivered by barge.

6.2.1 Potential Construction Impacts to Barge Traffic

It is assumed that the heavy haul equipment deliveries of the boiler components, steam turbine components and transformers will be by barge. The anticipated number of deliveries for this equipment type could generate an additional three to five barges during the peak delivery period. This increase is considered minimal compared to the existing barge traffic along the Ohio River and is therefore not expected to result in any negative impacts.

6.2.2 Potential Plant Operation Impacts to Barge Traffic

During plant operation, the influence on barge traffic will be due to increased limestone and coal deliveries required to facilitate the operation of the Project. The plant uses limestone in its air quality control equipment. Currently, the weekly deliveries include approximately 22 coal barges and three limestone barges.

Once the Project goes on-line, the approximate number of barge deliveries will increase, to a total of 55 coal barges and 7 to 8 limestone barges. Based on available information, the existing Ohio River barge traffic system has sufficient surplus capacity to handle this additional volume of traffic. As such, no negative impacts to the Ohio River barge system are anticipated from the operation of the Project.

6.3 Mitigation

6.3.1 Roadways

The most significant increase in traffic volume will occur during construction. Traffic volumes will increase by approximately 900 vehicular trips for a total of 2,525 vehicles per day, when added to the existing traffic volume on Highway 1838. Traffic volumes during plant operation will increase by approximately 25 vehicles for personnel and 60 for truck deliveries entering and exiting the site. Adding traffic related to Project operation to the existing traffic on Highway 1838 results in a total two-way traffic volume of 895 vehicles per day.

Highway 1838 has a two-way capacity of 3,200 vehicles per hour and a one-way (directional) capacity of 1,700 vehicles per hour. In terms of hourly volume, and conservatively assuming that all traffic impacts occur at times concurrent with existing peak hours of traffic, Highway 1838 has sufficient capacity to handle the traffic generated by the construction and operation of the Project. Therefore, neither the construction traffic nor plant operation traffic will have an adverse impact on the highway.

Minimizing fugitive dust generation during construction will be accomplished by the use of dust suppression techniques such as water application.

Since no significant adverse impacts are anticipated to occur as a result of construction and operation of the Project, no significant mitigation is expected to be required beyond the dust control measures previously described. Although the roadway capacities are sufficient to handle the traffic related to both the construction and operation of the Project, carpooling will be encouraged to further minimize traffic volume.

6.3.2 Barge System

The most significant increase in barge traffic will occur during plant operation, when barge traffic will increase by 40 barges per week. Satisfaction of permit requirements for the Louisville District-United States Army Corps of Engineers (USACOE) will address the effects of increased barge traffic along the Ohio River. Any potential impacts that are identified in the USACOE permitting process will be mitigated to the satisfaction of the USACOE.

7.0 References

American National Standards Institute, "Measurement of Sound Pressure Levels in Air," ANSI S1.13-1995, 1995.

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American National Standards Institute, "Specification for Sound Level Meters," ANSI S1.4-1983, 1983.

California Energy Commission, Energy Facility Licensing Process: Developer's Guide of Practices & Procedures, November 2000.

Gujarati, Damodar, Basic Economics, New York, McGraw-Hill Book Company, 1978.

Indiana Department of Transportation, Traffic data, Indianapolis, Indiana.

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The Landscape Institute, Institute of Environmental Management and Assessment, Guidelines for Landscape and Visual Impact Assessment, Second Edition.

Transportation Research Board, Highway Capacity Manual, Special Report 209.

United States Bureau of Land Management, Visual Resource Inventory, BLM Handbook H-8410-1.

Appendices

Appendix A

LEGAL BOUNDARIES
FOR
LG&E - TRIMBLE COUNTY STATION

BEING a tract of land lying along the waters of the Ohio River between Conners Ridge Road and Kentucky Highway 754 in Trimble County, Kentucky and being more particularly described as follows:

BEGINNING at the intersection of the south line of the tract conveyed to James E. and Joann Logan by deed of record in Deed Book 76, Page 746 in the office of the Clerk of Trimble County, Kentucky, with the east line of Highway 1838;

THENCE with said south line North 60 degrees 28 minutes 40 seconds East for a distance of 3520.23 feet to its intersection with the east line of same;

THENCE with said east line North 20 degrees 14 minutes 01 seconds West for a distance of 634.99 feet to its intersection with the south line of Conners Ridge Road;

THENCE with said south line North 59 degrees 37 minutes 01 seconds East for a distance of 24.41 feet, with a curve to the right having a radius of 2737.25 feet, the chord of which measures North 60 degrees 39 minutes 21 seconds East for a distance of 99.26 feet, North 61 degrees 41 minutes 41 seconds East for a distance of 256.09 feet, with a curve to the right having a radius of 7092.11 feet, the chord of which measures North 62 degrees 30 minutes 01 seconds East for a distance of 199.42 feet, North 63 degrees 18 minutes 21 seconds East for a distance of 183.24 feet, with a curve to the left having a radius of 2846.30 feet, the chord of which measures North 61 degrees 16 minutes 46 seconds East for a distance of 201.29, North 59 degrees 15 minutes 11 seconds East for a distance of 526.51 feet, with a curve to the right having a radius of 266.67 feet, the chord of which measures North 75 degrees 46 minutes 06 seconds East for a distance of 151.62 feet, South 87 degrees 42 minutes 59 seconds East for a distance of 88.49 feet, with a curve to the left having a radius of 210.30, the chord of which measures North 70 degrees 46 minutes 26 seconds East for a distance of 154.22 feet, North 49 degrees 15 minutes 51 seconds East for a distance of 94.64 feet, with a curve to the right having a radius of 217.97 feet, the chord of which measures North 66 degrees 45 minutes 26 seconds East for a distance of 131.04 feet, and North 84 degrees 15 minutes 01 seconds East for a distance of 188.25 feet to a point in same;

THENCE leaving said south line South 66 degrees 55 minutes 46 seconds West for a distance of 147.12 feet, South 50 degrees 48 minutes 19 seconds West for a distance of 65.15 feet, South 11 degrees 59 minutes 17 seconds West for a distance of 144.58 feet, South 48 degrees 54 minutes 33 seconds West for a distance of 71.27 feet to its intersection with the line common with the tract conveyed to Shirley and Maylise Sweazy by deed of record in Deed Book 96, Page 761 in the office aforesaid;

THENCE with lines common to same South 65 degrees 30 minutes 14 seconds West for a distance of 140.41 feet, South 24 degrees 05 minutes 24 seconds East for a distance of 129.50 feet, and North 67 degrees 12 minutes 36 seconds East for a distance of 100.82 feet to a corner common to same;

THENCE leaving said Sweazy tract South 24 degrees 35 minutes 06 seconds East for a distance of 420.41 feet, North 77 degrees 41 minutes 56 seconds East for a distance of 1667.80 feet, and North 10 degrees 47 minutes 37 seconds West for a distance of 530.68 feet to its intersection with the south line of Conners Ridge Road;

THENCE with said south line North 86 degrees 22 minutes 00 seconds East for a distance of 181.14 feet, with a curve to the left having a radius of 160.88, the chord of which measures North 51 degrees 36 minutes 54 seconds East for a distance of 183.40 feet to its intersection with the line common to the tract conveyed to Dace Brown Farrer by deed of record in Deed Book 78, Page 346 in the office aforesaid;

THENCE with lines common to said Farrer tract, South 05 degrees 35 minutes 04 seconds East for a distance of 572.17 feet, North 86 degrees 29 minutes 01 seconds East for a distance of 641.73 feet, North 02 degrees 34 minutes 19 seconds West for a distance of 588.39 feet, South 88 degrees 12 minutes 24 seconds East for a distance of 573.63 feet, North 04 degrees 32 minutes 58 seconds East crossing the south line of Conners Ridge Road at a distance of 244.51 and the north line at 284.62 feet, in all 1037.75 feet to its intersection with the south line of the tract conveyed to Dace B. Stubbs by deed of record in Deed Book 88, Page 21 in the office aforesaid;

THENCE with the south line of said Stubbs tract South 89 degrees 06 minutes 56 seconds East for a distance of 1324.75 feet to its intersection with the north line of Conners Ridge Road;

THENCE crossing said road South 00 degrees 08 minutes 04 seconds West for a distance of 40.08 feet to a point in the south line of said Conners Ridge Road;

THENCE with said south line of Conners Ridge Road South 89 degrees 51 minutes 32 seconds East for a distance of 885.98 feet to its intersection with the west line of Kentucky Highway 625;

THENCE with said west line South 34 degrees 34 minutes 49 seconds East for a distance of 534.20 feet, and with a curve tot the right having a radius of 3310.97 feet, the chord of which measures South 31 degrees 22 minutes 17 seconds East for a distance of 370.65 feet, and continuing with said west line South 28 degrees 09 minutes 46 seconds East for a distance of 42.40 feet to its intersection with a line common to the tract conveyed to Russell and Agnes Tingle by deed of record in Deed Book 294, Page 44 in the office aforesaid;

THENCE with lines common to said Tingle tract South 64 degrees 08 minutes 13 seconds West for a distance of 402.38 feet, South 16 degrees 16 minutes 28 seconds West for a distance of 193.18 feet, and South 13 degrees 32 minutes 46 seconds East for a distance of 178.50 feet to its intersection with a line common to the tract conveyed to Jon A. and Andrea B. Dunlap by deed of record in Deed Book 72, Page 634 in the office aforesaid;

THENCE with lines common to said Dunlap tract South 83 degrees 17 minutes 11 seconds West for a distance of 48.58 feet, and South 07 degrees 08 minutes 47 seconds East for a distance of 459.63 feet to its intersection with a line common to the tract conveyed to Jon A. and Andrea B. Dunlap by deed or record in Deed Book 62, Page 602 in the office aforesaid;

THENCE with lines common to said Dunlap tract South 75 degrees 26 minutes 35 seconds West for a distance of 300.40 feet, and South 07 degrees 08 minutes 46 seconds East for a distance of 113.57 feet to its intersection with the north line of Wentworth Ridge Road;

THENCE with said north line South 75 degrees 26 minutes 35 seconds West for a distance of 869.56 feet to its intersection with the west line and same, if extended of the tract conveyed to Brenda S. and Donald Stansbury by deed of record in Deed Book 91, Page 101 in the office aforesaid;

THENCE with said west line and the south line of said Stansbury tract South 08 degrees 51 minutes 16 seconds East for a distance of 821.12 feet, North 89 degrees 49 minutes 34 seconds East for a distance of 540.28, and North 84 degrees 57 minutes 50 seconds East for a distance of 552.41 feet to its intersection with the west line of Ogden Ridge Road;

THENCE with said west line South 06 degrees 17 minutes 44 seconds East for a distance of 380.57 feet, North 83 degrees 42 minutes 16 seconds East for a distance of 15.00 feet, South 06 degrees 17 minutes 44 seconds East for a distance of 255.00 feet, South 82 degrees 33 minutes 11 seconds West for a distance of 30.01 feet, South 08 degrees 35 minutes 54 seconds East for a distance of 255.00 feet, North 81 degrees 24 minutes 06 seconds East for a distance of 15.00 feet, South 08 degrees 35 minutes 54 seconds East for a distance of 111.00 feet, and South 07 degrees 40 minutes 44 seconds East for a distance of 749.30 feet to a point in same;

THENCE leaving said west line and crossing said road South 11 degrees 14 minutes 43 seconds East for a distance of 235.41 feet to a point in the south line of Ogden Ridge Road;

THENCE leaving said south line and with the west line of the tract conveyed to Shannon Tingle by deed of record in Deed Book 103, Page 178 in the office aforesaid, South 06 degrees 46 minutes 43 seconds East for a distance of 281.29 feet to a point in the west line of the tract conveyed to Steven L. and Laura Harp by deed of record in Deed Book 78, Page 646 in the office aforesaid;

THENCE with said west line and the west line of the tract conveyed to Kenneth Dale Bowling by deed of record in Deed Book 72, Page 416 in the office aforesaid, South 06 degrees 56 minutes 43 seconds East for a distance of 251.58 feet and South 03 degrees 27 minutes 42 seconds East for a distance of 1800.83 feet to its intersection with the north line of the tract conveyed to John L. and Margaret Dean by deed of record in Deed Book 35, Page 147 in the office aforesaid;
THENCE with said north line South 62 degrees 27 minutes 28 seconds West for a distance of 1018.74 feet and South 63 degrees 01 minutes 43 seconds West for a distance of 767.73 feet to its intersection with the east line of the tract conveyed to Howard and Anna C. Leach by deed of record in Deed Book 37, Page 282 in the office aforesaid;
THENCE with said east line North 20 degrees 46 minutes 54 seconds West for a distance of 1854.47 feet to its intersection with the south line of Ogden Ridge Road;
THENCE with said south line South 63 degrees 04 minutes 30 seconds West for a distance of 334.47 and South 58 degrees 40 minutes 35 seconds West for a distance of 559.52 feet to point in same;
THENCE leaving said south line South 21 degrees 09 minutes 13 seconds East for a distance of 80.36 feet, South 57 degrees 50 minutes 52 seconds West for a distance of 363.26 feet, and North 30 degrees 33 minutes 26 seconds West for a distance of 125.95 feet to a point in the south line of Ogden Ridge Road;
THENCE crossing said road North 24 degrees 08 minutes 03 seconds West for a distance of 60.02 feet to a point in the north side of said Ogden Ridge Road;
THENCE with said north line South 64 degrees 05 minutes 27 seconds West for a distance of 872.44 feet to a point in same;
THENCE leaving said north line South 20 degrees 00 minutes 50 seconds East for a distance of 30.16 feet to a point in the center line of said road;
THENCE with said center line South 65 degrees 31 minutes 17 seconds West for a distance of 158.97 feet, with a curve to the left having a radius of 715.18 feet, the chord of which measures South 57 degrees 33 minutes 42 seconds West for a distance of 198.07 feet, continuing with said center line South 49 degrees 36 minutes 07 seconds West for a distance of 135.99 feet, with a curve to the right having a radius of 601.68 feet, the chord of which measures South 60 degrees 52 minutes 52 seconds West for a distance of 235.36 feet, continuing with said center line South 72 degrees 09 minutes 37 seconds West for a distance of 88.01 feet, with a curve to the left having a radius of 826.11, the chord of which measures South 66 degrees 58 minutes 22 seconds West for a distance of 149.39 feet, and continuing with said center line South 61 degrees 47 minutes 07 seconds West for a distance of 275.86 feet to a point in same;
THENCE leaving said center line North 23 degrees 42 minutes 28 seconds West for a distance of 25.080 feet to a point in the north line of said Ogden Ridge Road;
THENCE leaving said north line North 23 degrees 42 minutes 28 seconds West for a distance of 84.85 feet, South 63 degrees 43 minutes 44 seconds West for a distance of 255.75 feet, and South 20 degrees 03 minutes 30 seconds East for a distance of 107.02 feet to its intersection with the center line of Ogden Ridge Road aforesaid;
THENCE with said center line South 65 degrees 24 minutes 54 seconds West for a distance of 235.81 feet to a point in same;
THENCE leaving said center line South 24 degrees 35 minutes 06 seconds East for a distance of 25.00 feet to its intersection with a line common to the tract conveyed to Leslie K. and Cherona C. Ball by deed of record in Deed Book 71, Page 779 in the office aforesaid;
THENCE with lines common to said Ball tract South 63 degrees 03 minutes 33 seconds West for a distance of 1469.870 feet, South 16 degrees 43 minutes 38 seconds East for a distance of 329.24 feet, South 33 degrees 31 minutes 06 seconds East for a distance of 66.62 feet, South 20 degrees 25 minutes 52 seconds East for a distance of 963.27 feet, South 16 degrees 55 minutes 03 seconds East for a distance of 583.70 feet, South 16 degrees 48 minutes 16 seconds East for a distance of 580.93 feet, South 14 degrees 29 minutes 12 seconds East for a distance of 619.86 feet, and North 60 degrees 34 minutes 12 seconds East for a distance of 1417.61 feet to its intersection with a line common the to the tract conveyed to Howard A. Rowlett Family Limited Partnership of record in Deed Book 96, Page 192 in the office aforesaid;

THENCE with lines common to same South 20 degrees 31 minutes 48 seconds East for a distance of 237.86 feet to its intersection with the north line of Kentucky Highway 754:
THENCE with said north line and with a curve to the left having a radius of 560.87 feet, the chord of which measures South 31 degrees 09 minutes 21 seconds West for a distance of 313.45 feet, continuing with said north line South 14 degrees 55 minutes 46 seconds West for a distance of 161.62 feet, South 75 degrees 04 minutes 14 seconds East for a distance of 10.00 feet, South 14 degrees 55 minutes 46 seconds West for a distance of 88.88 feet, with a curve to the right having a radius of 1979.96 feet, the chord of which measures South 15 degrees 04 minutes 13 seconds West for a distance of 8.98 feet, continuing with said north line North 74 degrees 47 minutes 49 seconds West for a distance of 5.00 feet, with a curve to the right having a radius of 1974.96 feet, the chord of which measures South 18 degrees 12 minutes 11 seconds West for a distance of 196.24 feet, continuing with said north line North 68 degrees 47 minutes 49 seconds West for a distance of 15.00 feet, with a curve to the right having a radius of 1989.96 feet, the chord of which measures South 25 degrees 11 minutes 59 seconds West for a distance of 259.25 feet, continuing with said north line South 29 degrees 11 minutes 46 seconds West for a distance of 383.56 feet, North 60 degrees 48 minutes 14 seconds West for a distance of 25.00 feet, South 29 degrees 11 minutes 46 seconds West for a distance of 50.00 feet, North 60 degrees 48 minutes 14 seconds West for a distance of 25.00 feet, South 29 degrees 11 minutes 46 seconds West for a distance of 100.00 feet, South 60 degrees 48 minutes 14 seconds East for a distance of 40.00 feet, South 29 degrees 11 minutes 46 seconds West for a distance of 55.18 feet, with a curve to the right having a radius of 442.53 feet, the chord of which measures South 43 degrees 07 minutes 34 seconds West for a distance of 213.23 feet, continuing with said north line South 32 degrees 56 minutes 29 seconds East for a distance of 20.00 feet, with a curve to the right having a radius of 462.53 feet the chord of which measures South 59 degrees 47 minutes 43 seconds West for a distance of 44.08 feet, and with a curve to the right having a radius of 482.91 feet, the chord of which measures South 83 degrees 13 minutes 03 seconds West for a distance of 472.47 feet, continuing with said north line North 76 degrees 04 minutes 57 seconds West for a distance of 217.37 feet, and South 13 degrees 55 minutes 03 seconds West for a distance of 10.00 feet to a point in same;
THENCE leaving said north line and crossing Kentucky Highway 1838 North 86 degrees 28 minutes 08 seconds West for a distance of 320.05 feet to a point in the north line of Kentucky Highway 754;
THENCE with said north line and with a curve to the left having a radius of 602.96 feet, the chord of which measures South 71 degrees 31 minutes 07 seconds West for a distance of 150.47 feet and continuing with said north line South 64 degrees 21 minutes 03 seconds West for a distance of 1313.18 feet to its intersection with the west line of Wise's Landing Road;
THENCE with said west line South 00 degrees 59 minutes 56 seconds West for a distance of 538.73 feet to its intersection with the north line of the tract conveyed to Gary and Julia Dunlap by deed of record in Deed Book 105, Page 77 in the office aforesaid;
THENCE with said north line South 68 degrees 52 minutes 46 seconds West for a distance of 423.34 feet to its intersection with the west line of same;
THENCE with said west line and the west line of the tract conveyed to Mario A. Caudillo by deed of record in Deed Book 97, Page 624 in the office aforesaid, South 27 degrees 56 minutes 06 seconds East for a distance of 489.22 feet to its intersection with the north line of the tract conveyed to Wayne and Mary Goode by deed of record in Deed Book 103, Page 151 in the office aforesaid;
THENCE with said north line South 67 degrees 28 minutes 24 seconds West for a distance of 436.44 feet to the low water line of the Ohio River;
THENCE with the meanders of said low water line North 27 degrees 17 minutes 39 seconds West for a distance of 1011.43 feet, North 25 degrees 16 minutes 44 seconds West for a distance of 933.99 feet, North 26 degrees 09 minutes 08 seconds West for a distance of 1701.80 feet, North 29 degrees 48 minutes 42 seconds West for a distance of 1514.81 feet, North 26 degrees 31 minutes 00 seconds West for a distance of 1240.82 feet, North 28 degrees 32 minutes 01 seconds West for a distance of 1287.93 feet, North 21 degrees 02 minutes 41 seconds West for a

distance of 1207.07 feet, North 21 degrees 39 minutes 30 seconds West for a distance of 1464.07 feet, North 60 degrees 28 minutes 40 seconds East for a distance of 70.00 feet, North 16 degrees 36 minutes 27 seconds West for a distance of 1057.26 feet, North 21 degrees 10 minutes 27 seconds West for a distance of 227.45 feet, North 02 degrees 19 minutes 32 seconds East for a distance of 205.58 feet, North 10 degrees 02 minutes 27 seconds West for a distance of 587.55 feet to its intersection with the south line of the tract conveyed to Gayle and Vivian Mahoney by deed of record in Deed Book 45, Page 474 in the office aforesaid;

THENCE with said north line North 61 degrees 02 minutes 43 seconds East for a distance of 1566.94 feet to its intersection with lines common to the tract conveyed to Gayle and Vivian Mahoney by deed of record in Deed Book 78, Page 746 in the office aforesaid;

THENCE with lines common to same South 10 degrees 25 minutes 52 seconds East for a distance of 608.19 feet, and North 43 degrees 06 minutes 55 seconds East for a distance of 429.57 feet to the center of Corn Creek;

THENCE with the meanders of Corn Creek South 14 degrees 04 minutes 56 seconds East for a distance of 267.25 feet, South 06 degrees 09 minutes 24 seconds West for a distance of 195.96 feet, South 38 degrees 19 minutes 03 seconds West for a distance of 480.21 feet, South 39 degrees 51 minutes 01 seconds West for a distance of 245.15 feet, South 18 degrees 54 minutes 00 seconds East for a distance of 182.77 feet, South 76 degrees 02 minutes 47 seconds East for a distance of 251.19 feet, and North 70 degrees 58 minutes 16 seconds East for a distance of 455.92 feet to a point in same;

THENCE leaving said center line South 85 degrees 01 minutes 14 seconds East for a distance of 157.87 feet and South 26 degrees 58 minutes 07 seconds East for a distance of 191.170 feet to a point in the west line of Kentucky Highway 1838;

THENCE with said west line South 19 degrees 10 minutes 28 seconds East for a distance of 148.92 feet and South 19 degrees 10 minutes 58 seconds East for a distance of 101.65 feet to a point in same;

THENCE leaving said west line and crossing Kentucky Highway 1838 North 60 degrees 28 minutes 40 seconds East for a distance of 110.17 feet to the point of beginning;

EXCEPTING SO MUCH as lies within Conners Ridge Road, Odgen Ridge Road and the rights of others in Corn Creek and Kentucky Highway 1838.

Said property contains 2,192 acres, more or less, excepting so much as lies within right of ways.

The above description was based on partial surveys, deeds, map entitled "Property Plat" dated 4-10-90 project # 31-7296 furnished by Louisville Gas and Electric Company, and is not intended to be used for transfer of property.

Appendix B – View of Facility from each Noise Survey Location

Figure B-1
View of Facility from NML-1

Figure B-2
View of Facility from NML-2

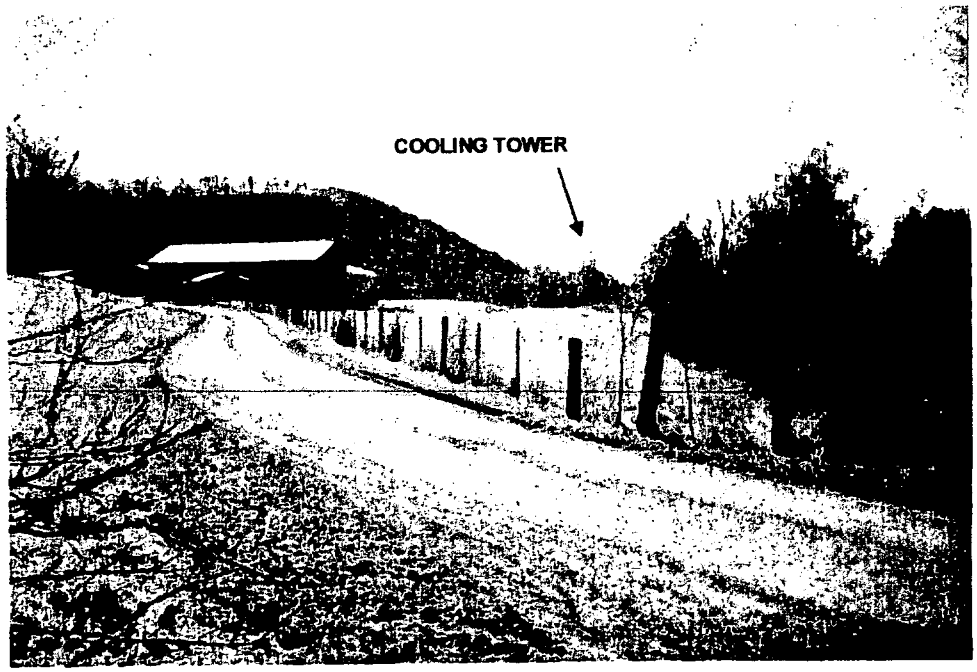

Figure B-3
View of Facility from NML-3

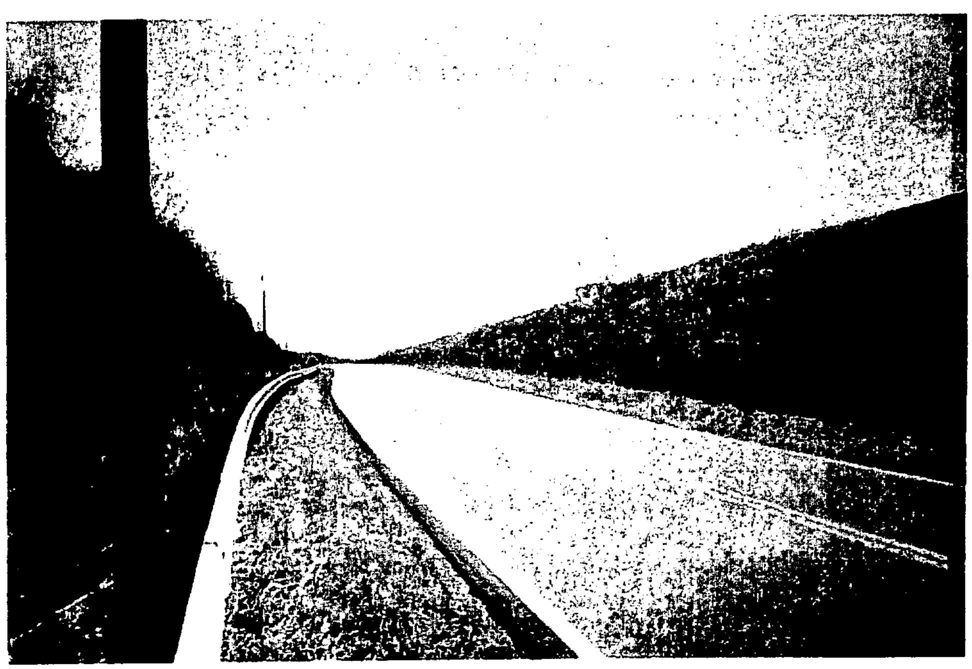

Figure B-4
View of Facility from P1

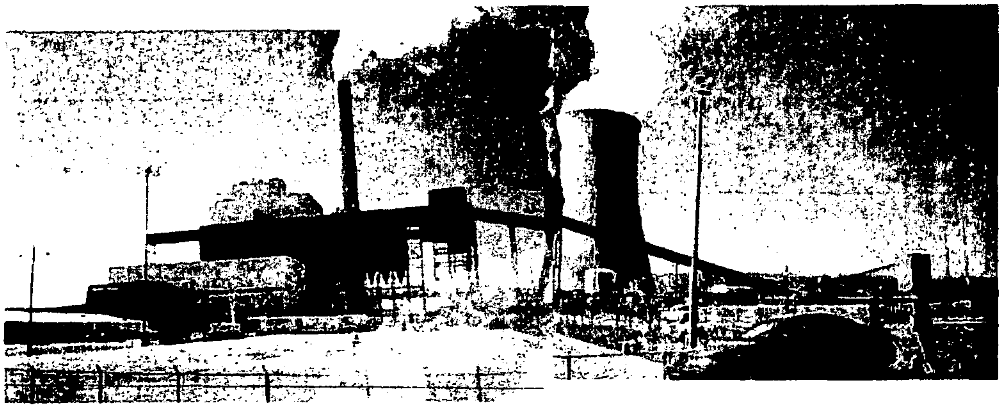

Figure B-5
View of Facility from P2

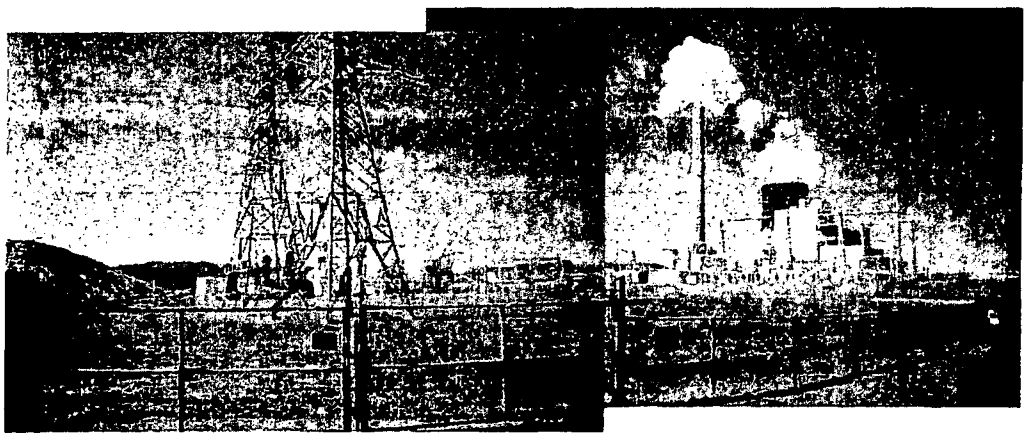

Figure B-6
View of Facility from P3

Appendix C – Noise Survey Equipment Calibration Certification

Scantek, Inc. CALIBRATION LABORATORY

Calibration Certificate No.11672

Instrument:	**Sound Level Meter**	*Date Calibrated:*	**November 4, 2003**
Model:	**NA27**		
Manufacturer:	**Rion**		
Serial number:	**01191119**		
Tested with:	**Microphone UC-53 s/n 99858** **Preamplifier NH-20 s/n 94641**		
Customer:	**Black & Veatch**	*Address:*	**11401 Lamar Ave.** **Overland Park, KS 66211**
Tel/Fax:	**913-458-2675**		

Status	**Received**	**Sent**
In tolerance	X	X
Out of tolerance		
See comments		

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., 01/28/2002 that describes the pertinent tests from the following standards: IEC 60651/1979, and ANSI S1.4/1983; IEC 60804/1985 and ANSI S1.43/1997; IEC 1260/1995 or IEC225/1966 or ANSI S1.11/1986

Instrumentation* used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal date	Traceability evidence Cal. Lab / Accreditation
483B-Norsonic	SME Cal Unit	25747	May 16,2003	Scantek Inc.
DS-360-SRS	Function Generator	33584	Oct.6, 2003	Scantek Inc.
34401A-Agilent Technologies	Digital Voltmeter	MY41022043	Oct.2, 2003	Agilent Technologies / A2LA
DPI140-Druck	Pressure Indicator	790/00	Nov.21, 2002	Transcat / A2LA
HMP233-Vaisala Oyj	Humidity& Temp. Transmitter	V3820001	Oct.7, 2003	Transcat / A2LA
PC Program 1019 Norsonic	Calibration software	v.4.24	Validated Jan 2003	-
1253-Norsonic	Calibrator	25726	May 15, 2002	Scantek Inc.

**Traceable to SI- BIPM through NIST (USA).*

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24 ±2.0 °C	100.371 ±2.0 kPa	42.3 ±5 %RH

Calibrated by	Mariana Buzduga	**Checked by**	Richard J. Peppin
Signature	[illegible]	Signature	[signature]
Date	[illegible]	Date	03.11.05

Document stored as C:\Nor1504\SlmCal\2003\RIONA27_01191119_M1.doc Page 1 of 2

Scantek, Inc.

CALIBRATION LABORATORY

Calibration Certificate No.11721

Instrument: **Sound Level Meter**
Model: **NL22**
Manufacturer: **Rion**
Serial number: **01110122**
Tested with: **Microphone UC-52 s/n 82734**
Preamplifier NH-21 s/n 02891

Date Calibrated: **November 24, 2003**

Status	**Received**	**Sent**
In tolerance	X	X
Out of tolerance		
See comments		

Basic Calibration

Customer: **Black & Veatch**
Tel/Fax: **913-458-7628**
Address: **11401 Lamar Ave. Overland Park, Kansas 66211**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., 01/28/2002 that describes the pertinent tests from the following standards: IEC 60651/1979, and ANSI S1.4/1983; IEC 60804/1985 and ANSI S1.43/1997; IEC 1260/1995, IEC225/1966 or ANSI S1.11/1986

Instrumentation* used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal date	Traceability evidence Cal. Lab / Accreditation
483B-Norsonic	SME Cal Unit	25747	Nov.22, 2003	Scantek Inc.
DS-360-SRS	Function Generator	33584	Oct.6, 2003	Scantek Inc.
34401A-Agilent Technologies	Digital Voltmeter	MY41022043	Oct.2, 2003	Agilent Technologies / A2LA
DPI140-Druck	Pressure Indicator	790/00	Nov.21, 2002	Transcat / A2LA
HMP233-Vaisala Oyj	Humidity& Temp. Transmitter	V3820001	Oct.7, 2003	Transcat / A2LA
PC Program 1019 Norsonic	Calibration software	v.4.24	Validated Jan 2003	-
1253-Norsonic	Calibrator	25726	Nov.11, 2003	Scantek Inc.

*Traceable to SI- BIPM through NIST (USA).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.9 ±2.0 °C	99.40 ±2.0 kPa	41.4 ±5 %RH

Calibrated by	Mariana Buzduga	**Checked by**	Richard J. Peppin
Signature	[signature]	Signature	[signature]
Date	11/25/2003	Date	03/11/25

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Page 1 of 2

Scantek, Inc.

CALIBRATION LABORATORY

Calibration Certificate No.11722

Instrument:	**Sound Level Meter**	*Date Calibrated:*	**November 24, 2003**
Model:	**NL22**		
Manufacturer:	**Rion**		
Serial number:	**01110133**		
Tested with:	**Microphone UC-52 s/n 82747** **Preamplifier NH-21 s/n 02902**		
Customer:	**Black & Veatch**	*Address:*	**11401 Lamar Ave.** **Overland Park, Kansas 66211**
Tel/Fax:	**913-458-7628**		

Status	**Received**	**Sent**
In tolerance	X	X
Out of tolerance		
See comments		

Basic calibration

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., 01/28/2002 that describes the pertinent tests from the *following standards:* IEC 60651/1979, and ANSI S1.4/1983; IEC 60804/1985 and ANSI S1.43/1997; IEC 1260/1995, IEC225/1966 or ANSI S1.11/1986

Instrumentation* used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal date	Traceability evidence Cal. Lab / Accreditation
483B-Norsonic	SME Cal Unit	25747	Nov .22, 2003	Scantek Inc.
DS-360-SRS	Function Generator	33584	Oct. 6, 2003	Scantek Inc.
34401A-Agilent Technologies	Digital Voltmeter	MY41022043	Oct. 2, 2003	Agilent Technologies / A2LA
DPI140-Druck	Pressure Indicator	790/00	Nov .21, 2002	Transcat / A2LA
HMP233-Vaisala Oyj	Humidity& Temp. Transmitter	V3820001	Oct. 7, 2003	Transcat / A2LA
PC Program 1019 Norsonic	Calibration software	v.4.24	Validated Jan 2003	-
1253-Norsonic	Calibrator	25726	Nov 11, 2003	Scantek Inc.

***Traceable to SI- BIPM through NIST (USA).**

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.9 ±2.0 °C	99.40±2.0 kPa	41.4 ±5 %RH

Calibrated by	Mariana Buzduga	**Checked by**	Richard J. Peppin
Signature	*[signature]*	Signature	*[signature]*
Date	11/26/2003	Date	03.11.25

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory

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Page 1 of 2

Scantek, Inc.

CALIBRATION LABORATORY

Calibration Certificate No.11720

Instrument:	**Sound Level Meter**	*Date Calibrated:*	**November 24, 2003**	
Model:	**NL22**	*Status*	**Received**	**Sent**
Manufacturer:	**Rion**	*In tolerance*	X	X
Serial number:	**01110135**	*Out of tolerance*		
Tested with:	**Microphone UC-52 s/n 82749**	*See comments*		
	Preamplifier NH-21 s/n 02904		*Basic Calibration*	
Customer:	**Black & Veatch**	*Address:*	**11401 Lamar Ave.**	
Tel/Fax:	**913-458-7628**		**Overland Park, Kansas 66211**	

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., 01/28/2002 that describes the pertinent tests from the following standards: IEC 60651/1979, and ANSI S1.4/1983; IEC 60804/1985 and ANSI S1.43/1997; IEC 1260/1995 or IEC225/1966 or ANSI S1.11/1986

Instrumentation* used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal date	Traceability evidence Cal. Lab / Accreditation
483B-Norsonic	SME Cal Unit	25747	Nov.22, 2003	Scantek Inc.
DS-360-SRS	Function Generator	33584	Oct.6, 2003	Scantek Inc.
34401A-Agilent Technologies	Digital Voltmeter	MY41022043	Oct.2, 2003	Agilent Technologies / A2LA
DPI140-Druck	Pressure Indicator	790/00	Nov.21, 2002	Transcat / A2LA
HMP233-Vaisala Oyj	Humidity& Temp. Transmitter	V3820001	Oct.7, 2003	Transcat / A2LA
PC Program 1019 Norsonic	Calibration software	v.4.24	Validated Jan 2003	-
1253-Norsonic	Calibrator	25726	Nov.11, 2003	Scantek Inc.

*Traceable to SI- BIPM through NIST (USA).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.9 ±2.0 °C	99.40 ±2.0 kPa	41.4 ±5 %RH

Calibrated by	Mariana Buzduga	**Checked by**	Richard J. Peppin
Signature	[signature]	Signature	[signature]
Date	[illegible]	Date	03.11.25

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Page 1 of 2

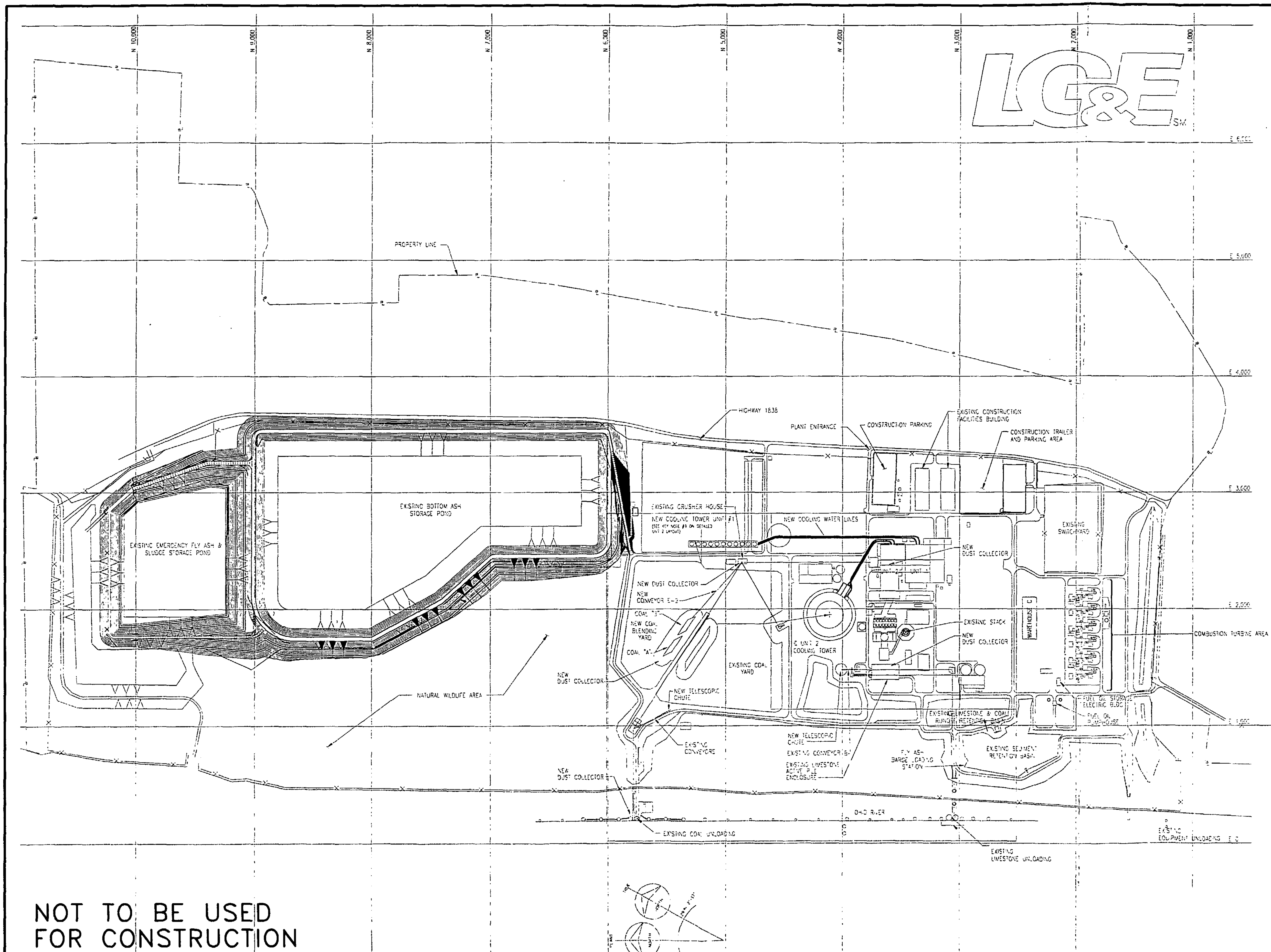

FIGURE 2-1
SITE LAYOUT
TRIMBLE COUNTY UNIT 2

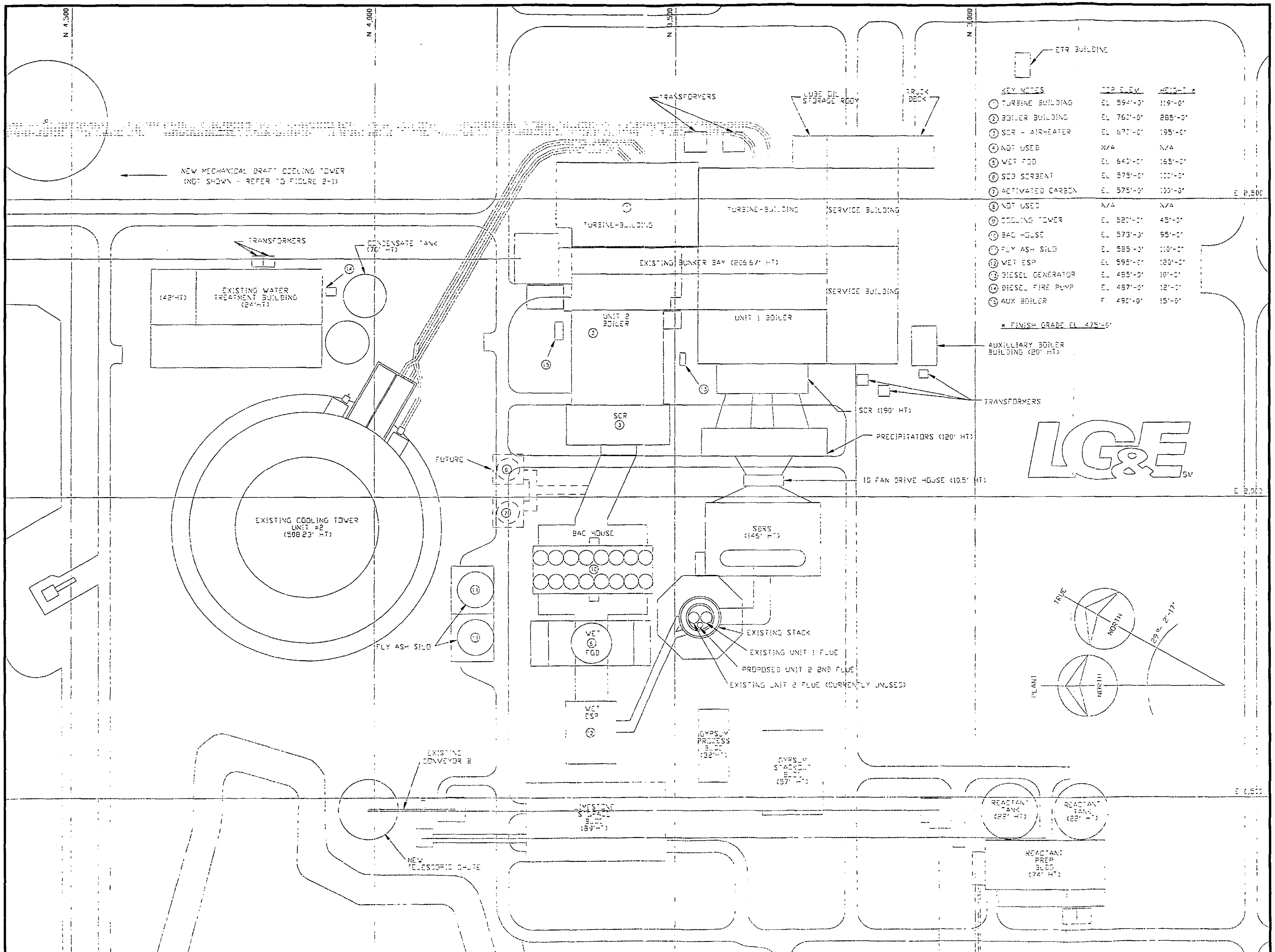

FIGURE 2-2
CONCEPTUAL SITE PLAN
TRIMBLE COUNTY UNIT 2

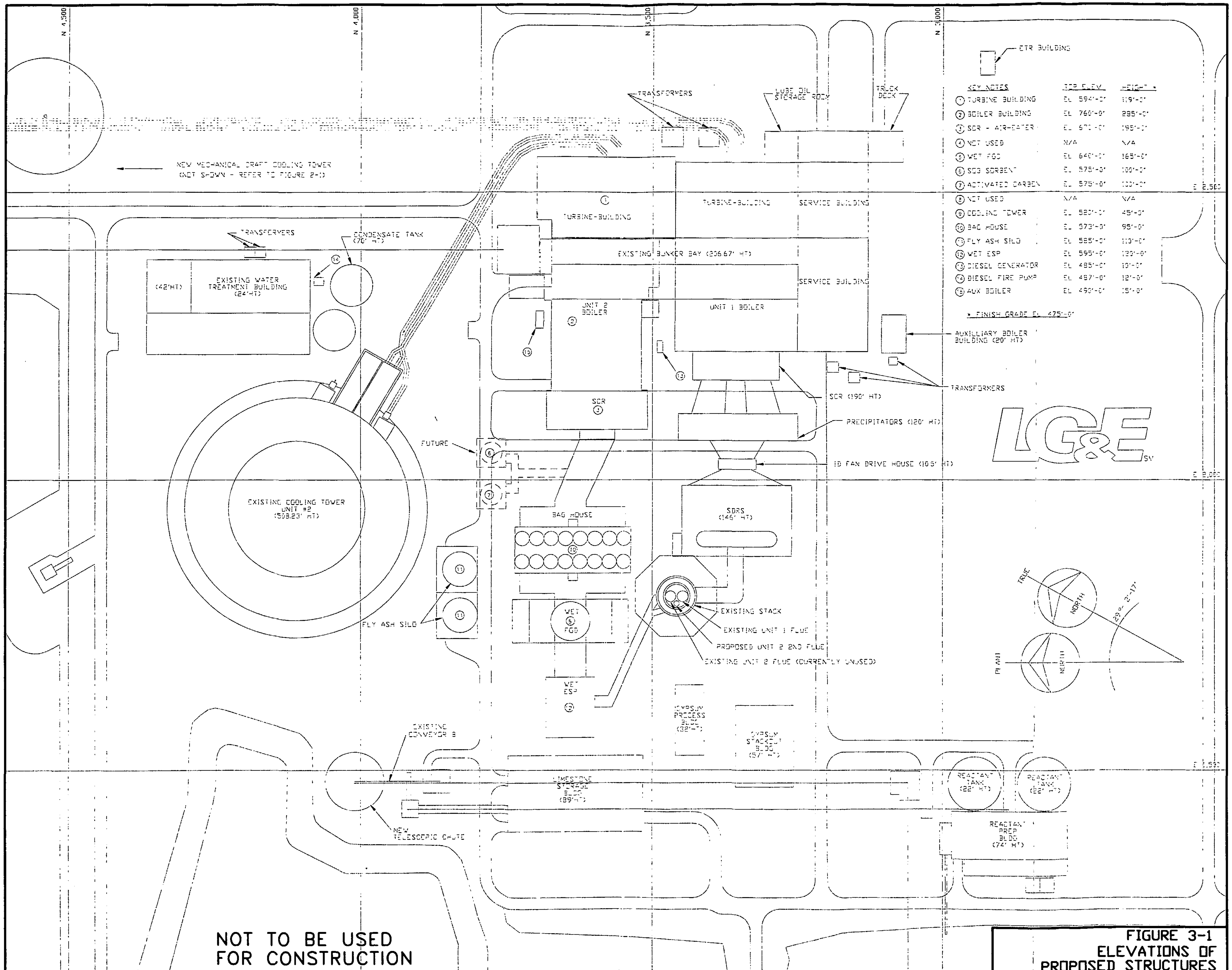

FIGURE 3-1
ELEVATIONS OF PROPOSED STRUCTURES