SITE ASSESSMENT REPORT

Proposed Solar Photo Voltaic Electric Generating Unit
Kentucky Utilities Company
E.W. Brown Generating Station
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Prepared for
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LIST OF ACRONYMS

AC	Alternating Current
ADT	Average daily traffic
AKGWA	Unique Well or Spring Identification Number Assignment in Kentucky Groundwater Data Repository – a comprehensive database of identified wells and springs in the Commonwealth of Kentucky maintained by the Kentucky Division of Water
AMSL	Above Mean sea level
BLM	US Bureau of Land Management
CCRT	Coal Combustion Residual Transport
dB	Decibels
dBA	A-weighted decibels
DC	Direct Current
FEMA	Federal Emergency Management Agency
HRSG	Heat recovery steam generator
Hz	Hertz
KOP	Key observation points
KPDES	Kentucky Pollution Discharge Elimination System
KRS	Kentucky Revised Statutes
KU	Kentucky Utilities Company
kV	Kilovolt
KYTC	Kentucky Transportation Cabinet
L_{10}	Sound level exceeded 10 percent of sampling period (often referred to as intrusive sound level)
L_{50}	the sound level exceeded 50 percent of sampling period

L_{90}	the sound level exceeded 90 percent of sampling period (often referred to as residual or background sound level)
L_{eq}	The average sound level for a specific time period
L_{dn}	Day-Night sound level
L_w	Sound power level
MW	Megawatts
NRCS	Natural Resources Conservation Service
PVA	Property Valuation Administrator (Mercer County)
SAR	Site Assessment Report
USDA	U.S. Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VRM	Visual Resource Management

EXECUTIVE SUMMARY

Presented below is a summary of key information and findings contained within this Site Assessment Report (SAR).

This SAR has been prepared to provide evaluation, documentation, and reporting pursuant to requirements in Kentucky Revised Statues (KRS) 278.708 for a new Solar Photo-Voltaic (PV) Electric Generation Unit proposed to supplement existing electric generating units at Kentucky Utilities Company's (KU) E.W. Brown Generating Station in Mercer County, Kentucky.

Construction of the Solar PV Unit and related infrastructure is estimated to require a period of roughly 15 months for completion, with 2016 as a target date for commercialization of the Solar PV Unit.

KU owns a 153 acre parcel to the south of the existing E.W. Brown Generating Station for siting of the proposed Solar PV Unit. Since there are no air emissions or stacks associated with the proposed Solar PV Unit, setback requirements of KRS 278.704(2), (3), or (5) do not apply.

No significant impacts associated with the proposed Solar PV Unit on air, land, or water resources have been identified in the analyses contained within this SAR. Furthermore, no significant impacts or complications on surrounding infrastructure or nearby residents (including viewshed impairments, property value effects, excessive noise, and transportation impacts) have been identified.

Construction and operation of the proposed Solar PV Unit will realize additional power generating capacity without increases in air emissions, wastewater discharges, and/or waste generation.

Analysis indicates that nearly the entire infrastructure necessary for the Solar PV Unit is already in place at the site, requiring only minor additions, modifications, and/or connections. The most significant of these is on-site installation of approximately one mile of 13.8 kV distribution line to provide interconnection with the existing KU E.W. Brown Generating Station facilities (Subject to TranServ generation interconnection study.) The facilities, including overhead distribution line, would be installed on standard 40 foot tall wood poles and would be on KU property with the exception of overhead crossing Hardin Heights Road

An assessment of the scenic compatibility of the proposed Solar PV Unit conducted in accordance with Bureau of Land Management protocols indicates the proposed facility will not have an impact on surrounding scenic value and no related mitigative measures are necessary.

Evaluation of potential impact of the proposed Solar PV Unit on surrounding property values resulted in a determination that there would be no negative effects associated with the proposed facility. Furthermore, location of the proposed Solar PV Unit immediately adjacent to the site of the existing E.W. Brown Generating Station ensures its compatibility with existing land use.

Completion of a targeted ambient background noise assessment and evaluation of potential impacts for noise emissions from the proposed Solar PV Unit resulted in a determination that no significant noise impacts would result from the proposed action, and no related mitigation is indicated.

Consideration of highway, railroad, and barge transport modes was included in a transportation analysis addressing potential impacts associated with construction and operation of the proposed Solar PV Unit. Based on this analysis, no significant impacts on transportation were identified.

Potential concerns associated with generation of fugitive dust during construction were identified and determined to be manageable using readily available best management practices which will also be incorporated into a General Stormwater Permit required for construction operations.

1.0 PURPOSE AND SCOPE

The purpose of this SAR is to provide evaluation, documentation, and reporting pursuant to requirements in KRS 278.708 for a new Solar PV Unit proposed to supplement existing Electric generating units at KU's E.W. Brown Generating Station in Mercer County, Kentucky.

Requirements for completion of the SAR are contained in KRS 278.706 as excerpted below:

> ***"Any person seeking to obtain a construction certificate from the board to construct a merchant electric generating facility shall file an application at the office of the Public Service Commission." [KRS 278.706(1)]"*** and

…such application shall contain:

> ***"A site assessment report as specified in KRS 278.708. The applicant may submit and the board may accept documentation of compliance with the National Environmental Policy Act (NEPA) rather than a site assessment report." [KRS 278.706(2)(l)]"***

The scope of the SAR is defined pursuant to the statutory requirements outlined in KRS 278.708 Site Assessment Report -- Consultant -- Mitigation Measures, as excerpted below:

> ***(1) Any person proposing to construct a merchant electric generating facility shall file a site assessment report with the board as required under KRS 278.706(2)(l).***
>
> ***(2) A site assessment report shall be prepared by the applicant or its designee.***
>
> ***(3) A completed site assessment report shall include:***
>
> > ***(a) A description of the proposed facility that shall include a proposed site development plan that describes:***
> >
> > 1. ***Surrounding land uses for residential, commercial, agricultural, and recreational purposes;***
> > 2. ***The legal boundaries of the proposed site;***
> > 3. ***Proposed access control to the site;***

4. ***The location of facility buildings, transmission lines, and other structures;***

5. ***Location and use of access ways, internal roads, and railways;***

6. ***Existing or proposed utilities to service the facility;***

7. ***Compliance with applicable setback requirements as provided under KRS 278.704(2), (3), or (5); and***

8. ***Evaluation of the noise levels expected to be produced by the facility;***

(b) An evaluation of the compatibility of the facility with scenic surroundings;

(c) The potential changes in property values resulting from the siting, construction, and operation of the proposed facility for property owners adjacent to the facility;

(d) Evaluation of anticipated peak and average noise levels associated with the facility's construction and operation at the property boundary; and

(e) The impact of the facility's operation on road and rail traffic to and within the facility, including anticipated levels of fugitive dust created by the traffic and any anticipated degradation of roads and lands in the vicinity of the facility.

(4) The site assessment report shall also suggest any mitigating measures to be implemented by the applicant including planting trees, changing outside lighting, erecting noise barriers, and suppressing fugitive dust.

Effective: April 24, 2002

This SAR for the proposed KU Solar PV Unit located at 815 Dix Dam Road, Harrodsburg, Mercer County, Kentucky 40330 has been prepared to meet the requirements of KRS 278.

2.0 INTRODUCTION

The project is proposed for development, construction, and operation of a nominal 10 MW AC (12.5 MW DC) Solar PV Unit adjacent to the E.W. Brown Generating Station. The E.W. Brown Generating Station currently utilizes three hydroelectric generating units with a combined rated capacity of 30 MW, three coal-fired electric generating units with a combined rated capacity of 750 MW, and seven simple-cycle natural gas fired combustion turbines with a combined rated winter capacity of 1004 MW (summer capacity of 910 MW).

Construction of the proposed Solar PV Unit is scheduled to be completed over a 15 month period, with commercialization of the unit anticipated in 2016. In addition to updating electric generating technology at the E.W. Brown Station, the proposed Solar PV Unit will add approximately 10 MW of power production capacity to the facility without increasing air emissions, wastewater discharges, or waste generation.

2.1 Location

As shown in Figure 1, Mercer County Map, KU's E.W. Brown Generating Station is located in the southeastern portion of Mercer County, Kentucky on the western bank of Herrington Lake near (Dix) River Mile 4. The site lies within the southwest quarter of the United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle Map for the Wilmore, KY Quadrangle.

The Kentucky Geologic Map Information Service, found on the Internet at URL http://kgs.uky.edu/kgsmap/KGSGeoServer/, was used to develop Figure 2, Topographic Vicinity Map, consisting of a portion of the Wilmore, KY USGS 7.5 Minute Topographic Quadrangle Map. The proposed Solar PV Unit facility occurs at approximate geographic coordinates of 37^0 46' 39" North latitude and 84^0 43' 15" West longitude, corresponding to Universal Transverse Mercator (UTM) coordinates of 700,713 meters Easting, 4,183,577 meters Northing, in Zone 16S, based on the horizontal datum for the World Geodetic System of 1984 (WGS84). The proposed Solar PV Unit site lies at an approximate average elevation of 870 feet above Mean Sea Level (AMSL) relative to the National Geodetic Vertical Datum of 1929 (NGVD29).

Figure 3, Proposed Solar PV Unit Site Layout, shows the preliminary layout of the Solar PV Unit site within the 153 acre parcel located immediately south of the existing KU E. W. Brown Generating Station property. The 153 acre parcel containing the proposed Solar PV Unit was acquired by KU from Thurman Hardin (Parcel No. 079.00-00014.00, Deed Book 328, Page 007) as identified in Figure 4, Surrounding Properties Map.

3.0 PROJECT DESCRIPTION

The proposed project includes development, construction, and operation of a nominal 10 MW Solar PV Unit. The proposed Solar PV Unit will supplement existing electric generating units, at KU's E.W. Brown Generating Station. As noted, the proposed facility will be constructed on the approximately 153 acre parcel owned by KU, located immediately south of the existing E.W. Brown Generating Station property. The 153 acre parcel is currently undeveloped pasture, formerly known as the Hardin Estate.

The proposed Solar PV Unit will include the following structures as shown on Figure 3:

- Approximately 260 Solar PV Panels
- 20 – 500 kW AC Inverters
- 10 – 1 MVA Pad-Mounted Transformers
- 13.8 kV Switchgear
- Perimeter Fencing
- Electric Distribution Cabling (Buried)
- Approximately One-Mile Long On-Site 13.8 kV Electric Power Distribution Line (Overhead)

During construction of the Solar PV Unit, the following temporary infrastructure will be required (also depicted on Figure 3):

- Laydown Area(s)
- Construction Trailer(s)
- Temporary Construction Access Road(s)
- Construction Craft Parking Area(s)

Once commercialized, the proposed Solar PV Unit electric generating unit will be served by the following infrastructure:

- Access Road (the existing Hardin Heights Road extending from Curdsville Road to the proposed site will be used to access the proposed site with new driveways to be constructed surrounding the proposed facility as needed)

- Electric Power Distribution Lines (connection to existing overhead electric power lines)

- Stormwater Collection / Retention System (as needed)

3.1 Site Setting

3.1.1 Physiographic Setting

As shown Exhibit 3.1, Physiographic Setting, the E.W. Brown Station site lies along the eastern border of Mercer County, Kentucky, near the west side of the Inner Bluegrass portion of the Bluegrass Physiographic Region.

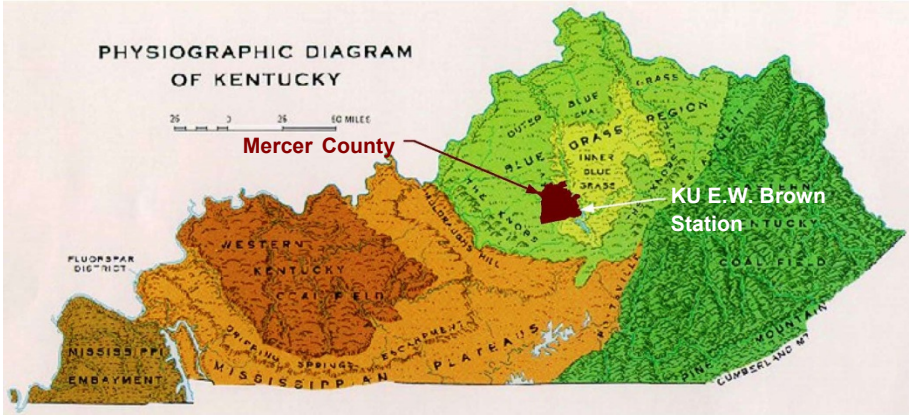


Exhibit 3.1- Physiographic Setting

The Bluegrass Region is characterized by Ordovician (and to a lesser degree, Silurian and Devonian) age rocks that are exposed at the surface. The Inner Bluegrass is characterized by gently rolling hills and rich, fertile soils. The gently rolling hills, characteristic of Ordovician strata of central Kentucky, result from weathering of relatively thick-bedded limestone where it has been pushed up along the crest of the Cincinnati Arch. The Inner Bluegrass region is drained by the Kentucky River which empties into the Ohio River.

The portion of the Inner Bluegrass Region containing the proposed Solar PV Unit site is drained by the lower reaches of the Dix River, a tributary of the Kentucky River. Runoff from the Solar PV Unit site flows into an unnamed tributary to the south that discharges into the Dix River at a point approximately 1.3 miles upstream of Dix Dam, where it is has been impounded to form Herrington Lake. Herrington Lake makes up much of this stretch of the Dix River, referred to as the lower Dix River watershed. Tributaries feeding the lower Dix River watershed include Hawkins Branch, Boone Creek, White Oak Creek, McKecknie Creek, Tanyard Branch, Cane Run, and Rocky Fork. Additionally, water from the upper Dix River watershed and its main tributaries (including Hanging Fork Creek, Clarks Run, and Spears Creek & Mocks Branch) also flows into the lower Dix River before it discharges into the Kentucky River at River Mile 118.2 just upstream from High Bridge.

3.1.2 Topographic Setting

As noted previously, the E.W. Brown Electric Generating Station lies within the southwest quarter of the USGS 7.5 minute topographic quadrangle map for the

Wilmore, KY Quadrangle. Figure 2, Topographic Vicinity Map, depicts the topography for the site and surrounding area.

This area is situated in southeast Mercer County along its eastern border, and is characterized by gently rolling hills with steep valleys surrounding Herrington Lake and along the Dix River. Topographic relief in the area is on the order of 450 feet from elevations that range from approximately 950 feet AMSL at topographic highpoints along high plateaus to the west, to the local topographic low point at the normal pool elevation of the Kentucky River (north of Herrington Lake) at 513.07 feet AMSL. According to the National Weather Service – Advanced Hydrologic Prediction Service at URL: http://water.weather.gov/ahps2/hydrograph.php?wfo=lmk&gage=dixk2 the normal summer pool elevation of Herrington Lake is 740 feet AMSL with the winter pool at 725 feet AMSL as regulated by Dix Dam located at E.W. Brown Generating Station, roughly one mile downstream from the site. The Kentucky River's normal pool elevation is controlled by Dam No. 7 on the Kentucky River at River Mile 117, approximately 7 miles north of the Site, operated by the Kentucky River Authority.

The property owned by KU is gently rolling with some steep grades. Elevations near the northwest corner of the property approach 900 feet AMSL while the lower portions of the site near Herrington Lake are approximately 760 feet AMSL. Elevations within the footprint of the proposed Solar PV Unit range from roughly 900 feet AMSL to 800 feet AMSL and average around 130 feet above the normal summer pool elevation of the adjacent Herrington Lake.

3.1.3 Geologic Setting

The E.W. Brown Generating Station is located in the southwest quarter of the USGS 7.5 minute quadrangle maps for the Wilmore, KY Quadrangle. Geology mapped for this quadrangle by the Kentucky Geological Survey (KGS) is depicted on Geologic Quadrangle Map GQ-847.

The Kentucky Geologic Map Information Service, found on the Internet at URL http://kgs.uky.edu/kgsmap/KGSGeoServer/, was used to develop Figure 5, Geologic Vicinity Map. As shown in Figure 5, the uppermost geologic unit in the area surrounding the proposed Solar PV Unit site includes two bedrock units: Lower Part of the Lexington Limestone (map symbol –Ollr) and Tyrone Limestone and Oregon Formation (map symbol – Oto). These formations are of Lower to Middle Ordovician age. These units are referred to as the Tyrone Limestone and Lexington Limestone – Curdsville Member in prior versions of the GQs. As indicated in the stratigraphic column for the Wilmore, KY Geologic Quadrangle, the Tyrone Limestone and Curdsville Member of the

Lexington Limestone are comprised of sequences of limestone, dolomite and shale described as follows:

Curdsville Member: “Interbedded limestone and shale: Uppermost 2 to 3 feet interbedded light olive gray micrograined limestone and olive-gray to medium-gray shale; underlain by 5 to 8 feet of brachiopod coquina that weathers pinkish gray; basal 5 to 7 feet is interbedded limestone and shale similar to uppermost unit. Pelecypods common in some micrograined limestone beds. Member grades south-eastward into basal part of Grier Limestone Member. Brachiopod coquina extends beyond edge of member and is shown locally as a key bed in the basal part of the Grier Limestone Member.”

Tyrone Limestone: “Limestone of two types: 1) light-gray to light-olive-gray, cryptograined, containing specks and small tubes of clear calcite (birdseye limestone), and 2) very light gray to light-brownish-gray, cryptograined, containing pods and interlaced tubes of yellowish-gray, micrograined, calcareous dolomite. Birdseye limestone predominates in northern part of quadrangle and limestone containing bodies in southern part of the quadrangle. Bentonite, as much as 2 feet thick, is present at top southwest of a line from the northwest corner of the quadrangle to Pollys Bend; a second bentonite bed, as much as 2 feet thick, is present about 25 feet below the top in all but the northwest corner of the quadrangle; a third bentonite bed, 0.1 to 0.3 foot thick and about 80 feet below the top, is present throughout the quadrangle.”

Structural contours drawn on top of the Tyrone Limestone in the vicinity of the proposed Solar PV Unit site indicate strata dipping generally to the west-northwest at a gradient of roughly 0.4 %.

3.1.3.1 Karst Setting

Due to the presence of underlying limestone, karst topography is common in Mercer County, including the area surrounding the proposed Solar PV Unit. However, as shown on in Figure 6, Karst Potential Map, the proposed Solar PV Unit is positioned in an area identified as having a moderate potential for karst development. No sinkholes are mapped within the footprint of the proposed Solar PV panel arrays; however, existing sinkholes are identified east of this area toward Hardin Heights Road.

KU will exercise standard diligence in assessing site geotechnical conditions and design for installation of the proposed Solar PV Unit and components. Note that the nature of the proposed development does not include elements which would alter local surface water and/or groundwater flow regimes in a manner likely to increase or significantly influence karst development.

3.1.4 Soils

A Custom Soil Resource Report was developed for the proposed Solar PV Unit site using the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey tool at URL http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Figure 7, Soils Map, was developed from the Web Soil Survey and is included in the Custom Soil Resource Report for the site that is provided in Appendix A. As shown in Figure 7, the following soils are present at the site:

Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
CmB	Chenault gravelly silt loam, 2 to 6 percent slopes	5.0	3.8%
CmC	Chenault gravelly silt loam, 6 to 12 percent slopes	10.5	7.9%
FaC	Fairmount-Rock outcrop complex, 6 to 12 percent slopes	0.3	0.2%
FaD	Fairmount-Rock outcrop complex, 12 to 30 percent slopes	13.5	10.2%
FaF	Fairmount-Rock outcrop complex, 30 to 60 percent slopes	13.8	10.5%
McC	McAfee silt loam, 6 to 12 percent slopes	20.3	15.4%
McD	McAfee silt loam, 12 to 20 percent slopes	51.2	38.9%
MeD	McAfee-Rock outcrop complex, 12 to 20 percent slopes	9.0	6.8%
uBlmB	Bluegrass-Maury silt loams, 2 to 6 percent slopes	6.5	5.0%
uMlmC	Maury-Bluegrass silt loams, 6 to 12 percent slopes	1.1	0.9%
W	Water	0.5	0.4%
	Totals for Area of Interest (AOI)…….	131.9	100.0%

Further descriptions of these soil mapping units are included in the USDA-NRCS Custom Soil Resource Report provided in Appendix A.

3.1.5 Water Resources

3.1.5.1 Surface Water

The most prominent surface water feature in the area is Herrington Lake which lies approximately 1,370 feet east of the proposed Solar PV Unit site. Herrington Lake is roughly 1,300 feet wide in the vicinity of the site and was formed by construction of the Dix Dam on the Dix River. According to data developed by the USGS, flow rates in the Dix River at Dix Dam range from around 750 cubic feet per second during periods of low-flow to approximately 1,900 cubic feet per second during high-flow. The Dix River discharges into the Kentucky River approximately 7 miles north of the proposed Solar PV Unit site.

Drainage from the proposed Solar PV Unit site flows south-southeast via unnamed ephemeral drainage ways into Herrington Lake. Herrington Lake empties into the Dix River via Dix Dam which is located at the northern terminus of the lake approximately 1.3 miles northeast of the proposed Solar PV Unit site. Herrington Lake flows from south to north in the vicinity of the proposed Solar PV Unit site. The Dix River also flows from south to north toward its confluence with the Kentucky River. As noted, the Kentucky River Basin is one of Kentucky's 12 major drainage basins. With headwaters in Lee County, the 260 mile long Kentucky River drains an area of over 7,000 square miles in east central Kentucky before discharging into the Ohio River near Carrollton at River Mile 545.

The adjacent E.W. Brown Generating Station discharges cooling water and ash treatment basin effluent into Herrington Lake via Outfalls 001, 002, and 003 pursuant to its Kentucky Pollution Discharge Elimination System (KPDES) Permit No. KY0002020. In addition, E.W. Brown Generating Station withdraws water for steam generation, cooling / quenching, and make-up water from Herrington Lake at a point identified as Outfall 005 in its KPDES permit.

Operation of the proposed Solar PV Unit will not generate wastewater and will not contribute flow to any of the outfalls identified in E.W. Brown Generating Station's KPDES permit. Due to alteration of ground cover and surface grades within the developed area during construction, , stormwater controls may be needed to address potential erosion prevention and sediment control. During site work for installation of the Solar PV Unit, these issues will be addressed by standard best management practices (BMPs) pursuant to a stormwater construction permit.

Installation of the solar panels will decrease the overall surface permeability area within the drainage basin containing the development. This will result in a slight increase in peak discharge rates during storm events. Cursory evaluation indicates an increase in

peak runoff discharge rate on the order of 30% when comparing the undeveloped site to the conditions following installation of the Solar PV Unit. Preliminary review suggests that existing drainage paths are adequate to accommodate these flows even for significant storm events without adverse hydraulic consequences; however, provisions for erosion prevention and sediment control may still require implementation during construction and operation of the proposed Solar PV Unit.

KU will consider these factors as it finalizes its design and will incorporate appropriate controls during construction / operation of the Solar PV Unit.

3.1.5.2 Floodplain

Figure 8, FEMA Firmette Map, was obtained from the Federal Emergency Management Agency (FEMA) website at:

https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Figure 8 [developed from Flood Insurance Rate Map (FIRM) No. 21167C01656C, Panel 165 of 275], depicts the site and surrounding floodplain information. As shown, the proposed Solar PV Unit site is in an area designated as Zone X, indicating that it is outside the 100-year and 500-year floodplains. A small area on the southern property boundary where an unnamed ephemeral drainage way enters Herrington Lake is within an area designated as Zone AE, indicating a 1 percent annual chance of flooding. None of the current or proposed operating structures at the E.W. Brown Generating Station lie within Zone AE.

3.1.5.3 Wetlands

Figure 9, Wetlands Map, was obtained from the United States Fish and Wildlife Services (USFWS) web-site using the “Wetlands Mapper” tool at:

www.fws.gov/wetlands/Data/Mapper.html.

As shown, this map identifies three potential wetlands in the location of the proposed project site. Tentatively identified wetlands include two potential ponds and one emergent wetland. The adjacent property to the north containing the E.W Brown Generating Station shows its surface water impoundments labeled as a “lake” and “pond”, respectively. Several potential wetlands including ponds and emergent freshwater wetlands are depicted on adjoining and nearby properties. Additionally, Herrington Lake is identified as a “lake” immediately east of the proposed site.

Available information suggests that there are three or more potential wetlands or jurisdictional waters identified in the vicinity of the area proposed for construction and/or

operation of the Solar PV Unit. However, this preliminary information does not indicate that any disturbances to these features will result from development of the proposed Solar PV Unit.

Note that the appearance of apparent wetlands area(s) on the National Wetlands Inventory Map is not necessarily definitive. NWI maps are prepared primarily by stereoscopic analysis of high altitude aerial photographs; therefore, it is recommended that any jurisdictional waters, including wetlands, identified on an NWI map should be field verified.

In the course of permitting and making preparations for the site, KU will complete a study to make a jurisdictional determination for wetlands, isolated waters and/or other "waters of the United States" (including ponds; lakes; perennial, intermittent, and ephemeral streams; etc. meeting corresponding diagnostic criteria for classification).

3.1.5.4 Groundwater

As previously noted, the site lies in the Curdsville Member of the Lower Lexington Limestone and Tyrone Limestone deposits along Herrington Lake. According to Daniel I. Carey, and John F. Stickney, Groundwater Resources of Mercer County, KY, County Report 84, Series XII, ISSN 0075-5567, Kentucky Geologic Survey (2004), these limestone members yield from 100 to over 500 gallons per day from valley bottoms and along streams. Limestone is expected to yield sufficient water for domestic water supply (more than 500 gallons per day) to wells in valleys of the Kentucky and Dix Rivers and their larger tributaries and near Herrington Lake. Water is hard, and may contain salt or hydrogen sulfide.

Review of the Kentucky Groundwater Data Repository - Water Well and Spring Location Map at URL http://kgs.uky.edu/kgsmap/KGSWater/, and query of the Kentucky Geological Survey Water Well & Spring Records Database at URL http://kgs.uky.edu/kgsweb/DataSearching/Water/WaterWellSearch.asp indicates that only one water well and two springs are inventoried within a one-mile radius of the site. The well, located approximately 0.4 miles southeast of the Solar PV Unit site (AKGWA No. 55257) is now plugged. The springs (AKGWA No.'s 30001946 and 30001939) are located approximately 0.4 miles north of the site at the E.W. Brown Generating Station, and 0.8 miles west of the site.

No other domestic use, industrial, municipal, monitoring, agricultural, public, or mining wells were depicted on the site or within one mile of the proposed Solar PV Unit site.

3.2 Surrounding Land Use

KU's E.W. Brown Generating Station is located in southeast Mercer County on the west side of Herrington Lake at Dix Dam. The proposed Solar PV Unit is planned for development within a 153 acre parcel of pastureland formerly known as the Hardin Estate that lies immediately south of the E.W. Brown Generating Station. The site is located roughly 7 miles east-northeast of Harrodsburg – the largest city in Mercer County – and roughly 3 miles northeast of the community of Burgin, Kentucky. In addition to the E.W. Brown Generating Station, the surrounding area is composed of farms, private residences, and undeveloped land.

Residential development in the area includes several lakefront properties that adjoin the proposed Solar PV Unit site parcel to the east across Hardin Heights Road along the west shore of Herrington Lake. A few additional residential structures are present in the vicinity of the proposed site to the west along the east side of Curdsville Road, which appear to be farm houses, the closest of which is approximately 0.25 miles west of the proposed site.

Herrington Lake lies approximately 1,370 feet east of the proposed Solar PV Unit site development. Land use in Garrard County across Herrington Lake to the east consists of a country club/golf course with lakefront residential properties on the eastern bank of Herrington Lake.

The proposed Solar PV Unit will be constructed on undeveloped pasture land. Based on the surrounding land use and the historical use of adjacent area properties for power generation, it is clear that the area is compatible with the proposed Solar PV Unit site development.

3.3 Legal Boundaries

As shown in Figure 10, Parcel Map, the site for the proposed Solar PV Unit is a 153 acre parcel currently owned by KU. According to the legal description, the KU Solar PV Unit parcel (Parcel ID 079.00-00014.00) was acquired from Thurman Hardin as recorded in Deed Book 328, Page 007.

A complete legal description for KU's E.W. Brown Solar PV Unit property is provided in Appendix B.

3.4 Access Control

Access to the site is currently controlled with perimeter farm fencing around the limits of the proposed Solar PV Unit site and a locked security gate controlling entry into the site along Hardin Heights Road. The existing access control facilities will be modified and

extended as necessary to control access to this site during construction and operation of the proposed Solar PV Unit.

3.5 Location of Buildings

The development for the proposed Solar PV Unit does include any buildings. As previously noted, the following major structures are planned for this development:

- Approximately 260 Solar PV Panels
- 20 – 500 kW AC Inverters
- 10 – 1 MVA Pad-Mounted Transformers
- 13.8 kV Switchgear
- Perimeter Fencing
- Electric Distribution Cabling (Buried)
- Approximately One-Mile Long On-Site 13.8 kV Electric Power Distribution Line (Overhead)

Former (now abandoned) residences and associated farm buildings are located within the parcel containing the proposed Solar PV development. The fate of these buildings has not yet been determined. Some or all may be demolished or remain. However, none will be occupied as residences.

No other residences occur within 1,000 feet from the boundaries of the proposed Solar PV Unit.

3.6 Transportation Infrastructure

As shown on Figure 11, Transportation Infrastructure Map, the existing E.W. Brown Generating Station and proposed Solar PV Unit facilities are served by roads for vehicular access.

There is no direct railroad access to the site and none is planned for the proposed Solar PV Unit project. The nearest railroad is a Norfolk Southern Railway line which adjoins the proposed site to the west. Note that a spur from this rail line located nearly one mile north of the proposed Solar PV Unit serves E.W. Brown Station and is the primary mode for coal shipments to that facility.

There is no local access to barge transport which is not supported by Herrington Lake or Dix River.

Direct vehicular access to the proposed Solar PV Unit will be provided via Hardin Heights Road. Hardin Heights Road is a two-lane, undivided local road that intersects with KY 342 near the northwest tip of the proposed Solar PV Unit property, and provides

access to 33 lakefront residential parcels along the eastern extent of Hardin Heights Road and Hardin Heights Road North. Both Harding Heights Road and Hardin Heights Road North terminate along the lakefront without connection to other roadways.

KY 342 is identified by two different local names in the vicinity of the project site. The southern section (Curdsville Road) is approximately 3.25 miles long, extending northeast from its intersection with KY 33 (Shakertown Road) just north of Burgin, Kentucky to a point near the entrance to the E.W. Brown Generating Station (and includes its intersection with Hardin Heights Road). The northern section (Dix Dam Road) runs west, extending approximately 1.25 miles before ending at its second intersection with Shakertown Road, approximately 1.3 miles south of US 68.

A roadway capacity analysis was performed for the main highways near the project that are expected to accommodate travel through Mercer County to the plant. As illustrated in Exhibit 7.1, the study roadways include:

- US 68 – two-lane undivided rural major collector arterial running southwest – northeast across Mercer County.

- KY 152 – two-lane undivided rural major collector running east – west across Mercer County.

- KY 33 (Shakertown Road) – two-lane undivided rural major collector running south from its intersection with US Highway 68 and into Boyle County.

- KY 342 - two-lane undivided rural local road running approximately 3.25 miles northeast from its intersection with KY 33 near Burgin, Kentucky, until it becomes Dix Dam Road, then running west until again intersecting with KY 33 northwest of the proposed Solar PV Unit site.

- Hardin Heights Road – two lane undivided rural local access road running east from KY 342 (Curdsville Road) toward Herrington Lake, then bearing south to its terminus. Harding Heights Road approximates the northern and eastern boundary of the proposed Solar PV site.

Martha Layne Collins – Blue Grass Parkway is the main east / west highway that traverses east central Kentucky, extending from Lexington in the east to Elizabethtown in the west. The site is located approximately 17 miles south of Martha Layne Collins – Bluegrass Parkway. Additionally, the site is located approximately 58 miles east of Interstate 65 and approximately 4.5 miles west of Interstate 75.

According to the Kentucky Transportation Cabinet's (KYTC) Department of Highways traffic count database, existing annual average daily traffic (AADT) volume on US 68 is 2,321 vehicles per day west of KY 33 and 2,942 east of KY 33. The AADT volume on KY 33 is 1,350 north of Hogue Lane and 2,540 south of KY 152. The AADT volume on KY 152 is 4,050 west of KY 33 and 2,070 east of KY 33. The AADT on KY 342 is 698 on the Dix Dam Road section and 1,710 on the Curdsville Road section.

Hourly peak-hour volume data for these roadways was not available, therefore, based on the American Association of State Highway and Transportation Officials: A Policy on Geometric Design of Highways and Streets (2004), a typical factor of 15 percent of the average daily traffic is considered the hourly peak-hour volume for these roads. Based on the Transportation Research Board Highway Capacity Manual (2010), the capacity of a two-lane roadway is 3,200 vehicles per hour or 1,700 vehicles per hour in one direction.

Altogether, during the peak construction period, there will be an estimated 184 construction related trips (84 personnel + 40 truck deliveries + 60 vendor visits) entering and exiting the site on a daily basis. During peak hour (either AM or PM), there will be 92 construction related trips. It is expected that half of the construction traffic will come from the north on KY 33 and the other half from the south on KY 33. Based on existing travel patterns, 25 percent of traffic from the north is expected to travel to/from the west on U.S. 68 and 25 percent to/from the east on U.S. 68. For the traffic coming from the south, 25 percent is expected to travel to/from the west on KY 152, 12 percent is expected to travel to/from the east on KY 152 and 13 percent to travel to/from the south on KY 33. To determine the total peak-hour / peak-direction volume, a typical 60/40 directional split was applied to the existing traffic and a 90/10 directional split was applied to the construction traffic. Based on the peak-hour / peak-direction total volume on the study roadways, the construction traffic is not expected to adversely affect the roadway capacity. The study roadways are expected to meet capacity with the traffic from the existing facility and the additional traffic from construction activities.

Following completion of construction and attainment of commercialization for the Solar PV Unit, traffic volumes are expected to return to levels currently observed. Additional analysis of traffic conditions is provided in Section 7 of this document.

3.7 Utilities

No utilities are planned or anticipated to be required for operation of the proposed Solar PV Unit.

However, to transmit electric power generated by the Solar PV panels, a series of 500 kW AC Inverters, 1 MVA Pad-Mounted Transformers, and a 13.8 kV Switchgear will be

installed at the site. Interconnection to the KU E.W. Brown Generating Station high voltage transmission system will require on-site construction of an approximately one mile long 13.8 kV electric power distribution line (which will connect through ties to the Brown South and West Cliff substations subject to TranServ generator interconnection study).

3.8 Compliance with Setback Requirements

KRS 278.704 contains setback requirements for exhaust stacks at proposed electric generating facilities. Considering that no exhaust stacks are associated with the proposed Solar PV Unit development, there are no applicable setback requirements under KRS 278.704.

4.0 SCENIC COMPATIBILITY ANALYSIS

This scenic compatibility analysis has been prepared consistent with requirements under Kentucky Revised Statute 278.702(2)(1) for the expansion of any new or existing power plant. This purpose of this analysis is to evaluate the compatibility of the proposed installation of Solar PV panels and ancillary facilities with the quality and characteristic of the surrounding scenic environment. This assessment provides an overview of the proposed facility developments, describes the existing scenic environment, presents a line-of-sight analysis, and assesses the compatibility of the proposed facility changes with the surrounding scenic environment.

4.1 Project Description

KU is proposing to install 260 standard efficiency multicrystaline technology Solar PV panels just south of the E.W. Brown Generating Station, as shown in Figure 2 (Topographic Vicinity Map). The proposed Solar PV Unit would be rated at 10 MW AC of electricity with distribution provided by the construction of a 13.8 kV distribution line. The solar panels will operate with nominal 300 Watt (W) PV modules and be installed in a fixed array at a tilt factor of 25 percent. The solar array would be supported by a ground-mounted racking system comprised of steel lattice with support piles to provide foundation of the support structure.

To support the proposed Solar PV Unit, the project would also include the development of access roads, temporary construction parking areas, 13.8 kV Switchgear integration with new distribution line, laydown yard, and security perimeter fencing as shown in Figure 3 (Solar PV Unit Site Layout).

4.2 Existing Structures in Project Area

The E.W. Brown Generating Station is the most visible structure in the greater project area (see pictures below), with prominent exposure on Herrington Lake and structures as tall as 561 feet. There are also residences scattered throughout the project area.

E.W. Brown Generating Station uses approximately 800 acres of land adjacent to Herrington Lake. The City of Harrodsburg is the closest population center, approximately 7 miles from E.W. Brown Generating Station. Three types of electric generation are performed at the existing E.W. Brown Generating Station: hydropower from the Dix Dam, coal-fired generation, and natural gas combustion. The majority of base load electricity generated at E.W. Brown Generating Station comes from coal-fired generation, which burns approximately 1.6 million tons of coal annually and has a nameplate capacity of 750 MW. Dix Dam, which impounds Herrington Lake, generates

30 megawatts. There are also seven simple cycle natural gas combustion turbines with a combined rated winter capacity of 1004 MW (summer rated capacity of 910 MW).

In addition to the existing energy generation facilities at E.W. Brown Generating Station, transmission towers and lines, coal combustion byproduct storage areas, access roads, parking, administration buildings, equipment buildings, and storage ponds are included as ancillary facilities.

4.3 Proposed Developments

4.3.1 Proposed Solar Energy & Ancillary Facilities

KU proposes to construct solar arrays and ancillary facilities on approximately 153 acres of property owned by KU just south of the existing E.W. Brown Generating Station. The proposed developments include the following primary facilities:

- Approximately 260 standard efficiency multicrystaline technology solar PV panels installed in a fixed array at tilt factor of 25 percent. The solar array would be supported by a ground-mounted racking system comprised of steel lattice, with support piles to provide foundation of the support structure. The solar arrays would be no taller than 10 feet in height.

- Construction of an approximate one mile 13.8 kV distribution line to provide interconnection with existing KU facilities. The 13.8 kV Switchgear equipment would include a main breaker interconnected to the E.W. Brown Coal Combustion Residual Transport (CCRT). The distribution facilities, including overhead distribution line, would be installed on standard 40 foot tall wood poles. The distribution line will interconnect with the KU high voltage transmission

system through ties to the Brown South and West Cliff substations (subject to TranServe Generator Interconnection study).

- Access road construction.

The conceptual design and configuration of the proposed Solar PV Unit are provided in Figure 3, depicting the location and layout of the proposed site plan.

4.3.2 Land Use Conversion of the Project Site

The project site is currently an open field used for pastureland (see images below). A series of existing farm buildings and one residential structure lie within the boundaries of the KU parcel containing the proposed Solar PV Unit development in close proximity to the project site. The farm house is located approximately 700 feet southeast of the nearest point along the perimeter of the preliminary project site footprint. This residence is currently vacant and may remain or be demolished prior to construction but will not be available for residential occupancy in the future. The project site is not considered to currently support residential use.

The proposed project would convert the project site's existing agrarian use to a light industrial/utility use by installing permanent energy generation facilities. As noted, the E.W. Brown Generating Station is located approximately 0.5 miles from the proposed solar generation facility and dominates the visual landscape in the project viewshed, thus imposing an existing industrial setting in the greater project area including the proposed Solar PV Unit site.

4.4 Existing Environment & Technical Approach

The project site is located approximately 7 miles east-northeast of Harrodsburg, Kentucky in an area generally used for agriculture and grazing. The terrain surrounding the solar project site is rolling hills and open meadow. The land uses in the project area

are agricultural/grazing, recreation (Herrington Lake), and residential. Herrington Lake borders the facility on the east with a Norfolk Southern Railway line to the west. Hardin Heights Road wraps around the northern and eastern portions of the project site, providing access to residences along the western shore of Herrington Lake. The images below provide representative views of the surrounding scenic character and quality. It is worth noting that field reconnaissance was performed in mid-February with no vegetation present, offering unobscured views of E.W. Brown Generating Station and surrounding residences.

View from Hardin Heights Road to the SE

View from Lake Herrington Shoreline to NW

View from Curdsville Road to SW

View from Hardin Heights Road to SW

4.4.1 Visual Assessment Methodology

This assessment uses the established methods provided in the Bureau of Land Management (BLM) Visual Resource Management protocol (BLM Handbook H-8410-1). In the absence of a specific methodology provided in the Kentucky Revised Statues, the BLM methodology is widely considered the standard methodology for assessing visual and scenic effects. The process used to assess the visual impacts incorporated desktop and field analysis components scaled to the complexity of the project site. Data collection and analytical methods included:

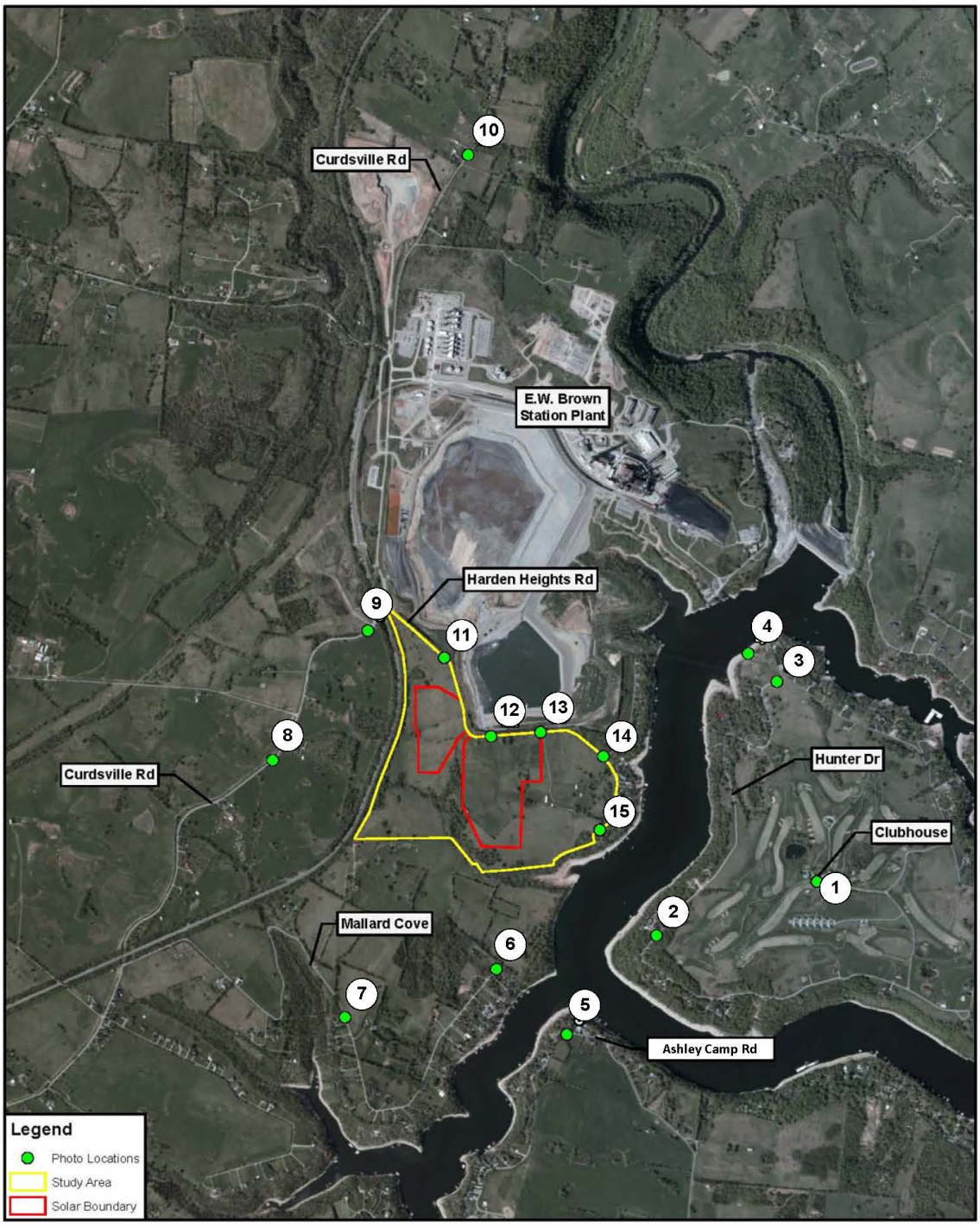
- Desktop review of surrounding terrain
- Selection of key observation points (KOPs)
- Field reconnaissance to collect photographs and GIS data to characterize existing environment
- Line-of-sight/viewshed analysis
- Site specific 3D-model simulations of the proposed solar arrays

4.4.2 Selection of Key Observation Points

Based on the desktop review of the surrounding topography and terrain, KOPs were identified to develop viewshed and line-of-sight perspectives. KOPs are selected to be representative of critical locations (i.e. public locales, such as parks and schools) and from which the proposed project may be predominantly viewed. A review of baseline data and field reconnaissance were conducted to gain familiarity with the existing landscape, viewer sensitivity, and the scenic characteristics of the project site and surrounding area. Fifteen initial KOPs were selected based on the following criteria:

- proximity to residential and public areas;
- location provides representative views of the landscape along a specific transportation route segment (e.g., Hardin Heights Road, Ashley Camp Road, Curdsville Road, Hunter Drive);
- general location of interest or recreation (e.g., golf course, Herrington Lake); and/or,
- viewpoint effectively captures the presence or absence of a potentially adverse impact in that location.

The position of the 15 KOPs in relation to the project site are provided in Exhibit 4.1. A visual resources inventory was conducted over a two day period in mid-February 2014. KOP viewpoints were visited and evaluated for visual assessment.



Cardno ENTRIX

N

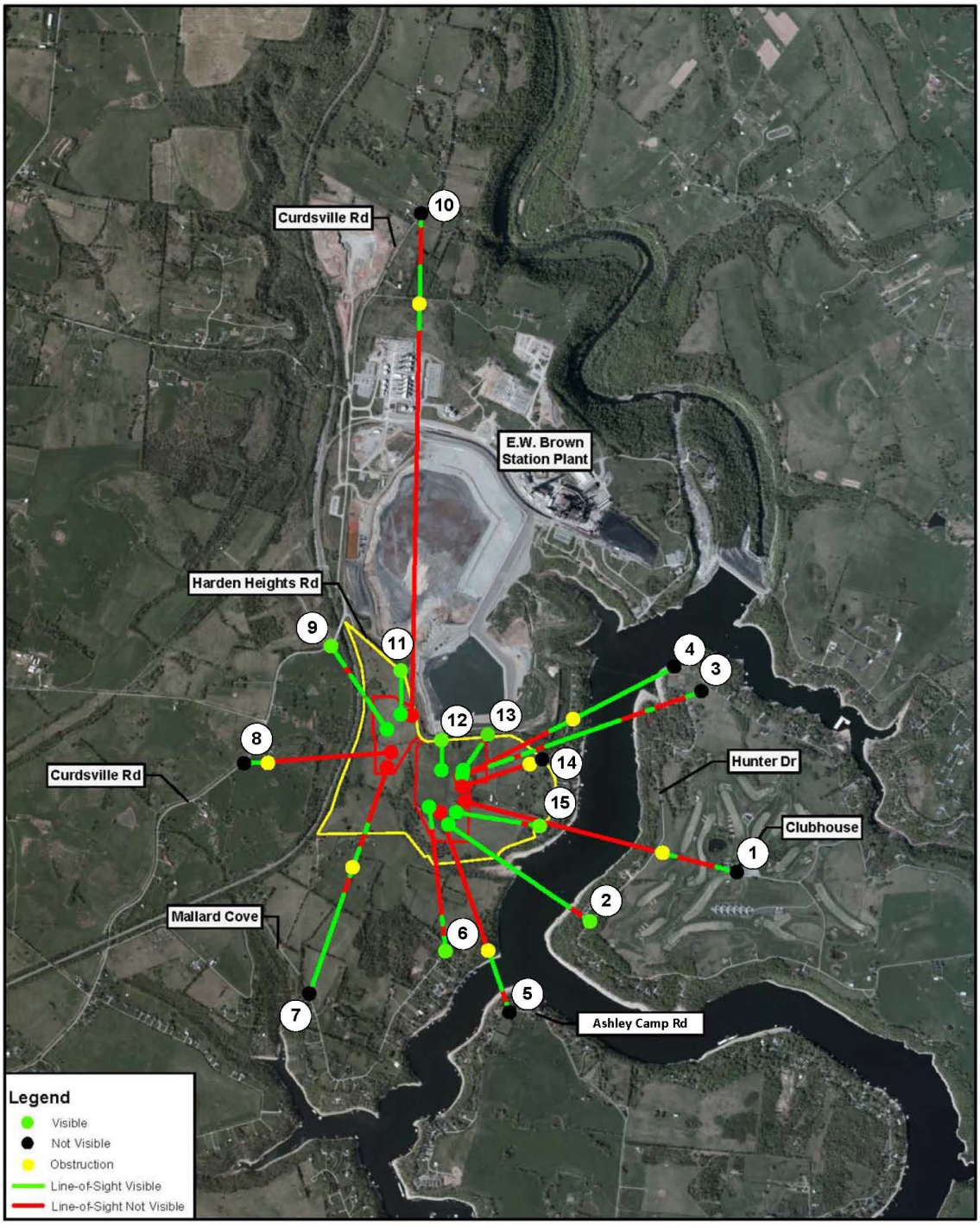
0 0.375 0.75
Miles

KU E.W. Brown Station

Exhibit 4.1 | KOP Locations

4.5 Line of Sight Profiles

A digital elevation model (DEM) was downloaded from USGS National Elevation Dataset. The raster file dataset was a 30 meter resolution and is representative of the bare earth elevation/terrain changes. Vegetation is not accounted for in the DEM and therefore used for preliminary screening of KOP prior to field data collection. Line-of-sight profiles were generated from various potential KOP locations utilizing the DEM surface. A line-of-sight is a straight line tool enabled within GIS that calculates intervisibility between the first and last point (first point being the viewer and the last point being the proposed solar facilities). Any obstruction of the line-of-sight would show lack of visibility and visual impact. An elevation of 10 feet above existing grade for the proposed solar arrays was used for the line-of-sight profiles from a person standing 6 feet tall at a KOP location. Although the proposed distribution line would be suspended on standard 40 foot tall wood poles, the solar arrays would be the most dominant feature of the project most likely to attract the viewer's attention. Exhibit 4.2 illustrates the use of the line-of-sight tools in determining possible visibility of the site.



Cardno ENTRIX

Line of Sight Anlaysis
Observer Offset: 6 Feet
Target Offsset: 10 Feet
DEM surface: 30m Bare Earth
(No Vegetation)

N

0 0.375 0.75
Miles

KU E.W. Brown Station

Exhibit 4.2 | Line-of-Sight

4.6 Visual Impact Assessment Methodology

The principal measure for assessing project construction and operation effects to visual resources lies in the BLM's use of a "contrast rating." A visual contrast rating entails comparing project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. The steps in the contrast rating process used in this assessment follow the procedures provided in the BLM Manual H-8431 (Visual Resources).

To evaluate the potential visual effects, contrast ratings were assigned to each KOP by considering the following factors: distance, angle of observation, length of time the project was in view, relativity to size or scale, season of use, light conditions, recovery time, spatial relationship, and atmospheric conditions. Contrast ratings were noted as being none, weak, moderate, and strong, depending upon the degree of change. Contrast created by the proposed project was rated by the criteria provide in Table 4.1 below.

Table 4.1: Degree of Contrast 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.

Source: BLM VRM 2007

The 15 KOPs offer different perspectives on the proposed developments and therefore differ in their evaluation of the contrast rating and whether they are compatible with the surrounding environment. In this evaluation, each KOP is assessed for its contrast with the existing setting, with a discussion of whether the design would conflict with the surrounding scenery and warrant mitigation measures.

Many factors go into making a degree of contrast determination. Four elements (form, line, color, and texture) of the proposed developments are compared to the existing landscape. Each of these elements is further examined by looking at other factors including distance, perspective, spatial relationships, and length of time in view. To assist in visualizing the potential effects from the proposed developments, a 3D conceptual model was developed (Exhibit 4.3 below). Furthermore, the measures included in Table 4.2 are considered when determining a degree of contrast:

Exhibit 4.3: Simulation of Proposed Solar and Distribution Facilities

Table 4.2: Measurements of Contrast

Measure	Criteria
Distance to the Contrast	Contrast decreases farther away.
Angle of Observation	Apparent size of proposed developments to the angle of the viewer's line-of-sight and slope.
Length of Time Project is Viewable	How long will the viewer see the contrast? Glimpse of the project? Longer period of exposure?
Relative Size or Scale	Size of the contrast in relation to the surrounding landscape.
Season of Use	Will contrast change with season?
Light Conditions	Will contrast change with change in light conditions?

Source: BLM VRM 2007

4.7 Technical Assumptions

Assumptions regarding the proposed facilities for analysis purposes included:

- Proposed solar arrays will be no taller than 10 feet from existing ground surface.
- The project site will experience a negligible change due to grading and site preparation activities, with some areas realizing an increase in height and other areas on the project site being lower.
- Proposed wooden poles for the 13.2 kV transmission line would be no taller than 40 feet from existing ground surface.
- Although the DEM line-of-sight model does not take into account vegetative screening, effects may be seasonally related.

4.8 Visual Effects Analysis

The visibility and degree of contrast for the proposed solar developments were assessed for each KOP. The findings for each KOP are summarized in Table 4.3 AND discussed individually with the photographs that follow. Please refer to Exhibit 4.1 for reference on the specific location of the KOPs.

Table 4.3: KOP Analysis Summary

KOP	Distance to Project Site (miles)	Solar Facilities Visible?	Notes	Contrast Rating
1	0.79	No	View from Clubhouse Drive.	None
2	0.44	Yes	View from Hunter Drive across Lake, partial screening by vegetation but project site viewable in winter months.	Weak
3	0.65	No	View from Hunter Drive across Lake, existing Brown Station plant visible but project site blocked by vegetation.	None
4	0.60	No	View from Herrington Lake Shore, existing Brown Station plant visible but project site not visible.	None
5	0.52	No	View from Ashley Camp Road, rolling terrain with thick forest buffering the lake blocks view of project site.	None
6	0.33	No	View from Mallard Cove Drive. Thick foreground vegetation is present, but project site is visible during winter months.	Weak
7	0.59	No	View from Mallard Cove Drive. Vegetation in background blocks view of project site.	None

KOP	Distance to Project Site (miles)	Solar Facilities Visible?	Notes	Contrast Rating
8	0.39	No	View from Curdsville Road looking East to project site. Rolling terrain blocks distant view of project site.	None
9	0.20	Partially	View from Curdsville Road looking East to project site. Rolling terrain with background vegetation blocks distant views of project site. Facilities may be visible during winter.	Weak
10	1.44	No	View from North of the Brown Station Plant. Project site not visible.	None
11	0.08	Yes	View from Harden Heights Road. Clear view of project site.	Strong
12	0.06	Yes	View from Harden Heights Road. Clear view of project site.	Strong
13	0.01	Yes	View from Harden Heights Road. Clear view of project site.	Strong
14	0.17	Partially	View from Harden Heights Road. Rolling terrain blocks most view of project site.	Weak
15	0.20	Yes	View from Harden Heights Road. Rolling terrain with distant views of project site.	Weak

KOP 1: Golf Course Club House Drive (East-Southeast to West-Northwest)

This area is lightly forested in the foreground and background. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 2 Hunter Drive (Southeast to Northwest)

This KOP is located in the southwest corner of the golf course and offers views of Lake Herrington and the project site. Residential homes are present along the shoreline on both sides of Lake Herrington. E.W. Brown Generating Station and plume from stacks are viewable from this KOP. The project site will be most viewable in the distance during winter months when vegetation along the shores of Lake Herrington is sparsest. Views of the project site would be tempered during spring, summer, and fall. A **weak** contrast rating is assigned to this KOP.

KOP 3: Hunter Drive (East-Northeast to West-Southwest)

This KOP offers views of Lake Herrington and E.W. Brown Generating Station. This view underscores the effect that the E.W. Brown Generating Station has on the greater project area. This KOP is set in rolling, open terrain with vegetation lining the shores of Lake Herrington. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 4: Lake Herrington Shore (Northwest to Southeast)

This KOP is located along the shoreline of Lake Herrington looking southwest to the project site. This area is lightly vegetated and offers views of Lake Herrington. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 5: Ashley Camp Road (South to North)

This KOP offers views of Lake Herrington from a residential area along Ashley Camp Road. This area is moderately vegetated, especially along the shoreline of Lake Herrington. Vegetation and topography obscure views of the project site from this KOP. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 6: Mallard Cove Drive (South to North)

This KOP looks north to the project site at the end of a residential street. Views of the project site will be blocked by vegetative screening in the spring, summer, and fall. A **weak** contrast rating is assigned to this KOP.

KOP 7: Mallard Cove Drive (South to North)

This KOP offers views of agricultural fields with moderate vegetative screening in the background. Residences are present to the south and east of this KOP on Mallard Cove Drive. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 8: Curdsville Road (West to East)

This KOP offers views of agricultural lands with moderate vegetation in the background. The slightly rolling terrain blocks the project site, which is over a half-mile away, from this KOP. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 9: Curdsville Road (Northwest to Southeast)

This KOP offers views of agricultural lands with dense vegetation in the background. Moderate vegetation and the slightly rolling terrain block direct views of the project site from this location. However, during the winter, some of the proposed developments may be visible from this perspective. A **weak** contrast rating is assigned to this KOP.

KOP 10: Curdsville Road (North to South)

This KOP offers views of agricultural lands with dense vegetation in the background. The plumes from the stacks at E.W. Brown Generating Station are visible in background. Vegetation and rolling terrain block views of the project site from this KOP, which is over 1.5 miles away from the project site but offers the closest view from the north beyond E.W. Brown Generating Station. The proposed developments will not be visible from this KOP and, therefore, there is no contrast rating assigned to this KOP.

KOP 11: Harden Heights Road (North to South)

This KOP offers views of agricultural lands and slightly rolling terrain. Dense vegetation is present in background. This perspective offers a direct view of the project site. The proposed facilities will be clearly visible from this location and the character of the existing scenery will change from open/agricultural field to light industrial/utility facilities. A **strong** contrast rating is assigned to this KOP.

KOP 12: Harden Heights Road (North to South)

This KOP offers views of agricultural lands and slightly rolling terrain. Dense vegetation is present in background. This perspective offers a direct view of the project site and is from the perspective of the northern border of the project site. The proposed facilities would be clearly visible from this location and the character of the existing scenery will change from open/agricultural field to light industrial/utility facilities. A **strong** contrast rating is assigned to this KOP.

KOP 13: Harden Heights Road (Northeast to Southwest)

This KOP offers views of agricultural lands, a residence surrounded by light vegetation, and slightly rolling terrain. This perspective offers a direct view of the project site and is from the perspective of the northern border of the project site. The proposed facilities will be clearly visible from this location and the character of the existing scenery will change from an open/agricultural field to light industrial/utility facilities. The residence shown in this image is currently vacant and will not be occupied again. A **strong** contrast rating is assigned to this KOP.

KOP 14: Harden Heights Road (East to West)

This KOP offers view of agricultural lands and slightly rolling terrain. A utility pole and line are present in foreground of view, along with light vegetation. The slope of the terrain blocks the majority of the project site, but some of the proposed developments may be viewable from this KOP. There are residences present just east of this KOP, with Hardin Heights Road providing sole access. Considering the limited amount of visibility the proposed developments will be from this viewpoint, a **weak** contrast rating is assigned to this KOP.

KOP 15: Harden Heights Road (East to West)

This KOP offers views of agricultural land, rolling terrain, and a direct view of the project site. Farm buildings and light vegetation are present in the background of the view. There are residences present just east of this KOP, with Hardin Heights Road providing sole access. The proposed developments will be visible in the distance from this KOP and only fully visible during winter months. A **weak** contrast rating is assigned to this KOP.

4.9 Summary of Results

The proposed solar and ancillary facilities will be visible from eight of the 15 KOPs. Of the eight KOPs where the proposed developments are visible, KOPs 2, 6, 9, 14, 15 are assigned a weak contrast rating and KOPs 11-13 are assigned a strong contrast rating.

KOPs 11-13 are from the immediate perspective of the northern boundary of the project area and represent the most affected areas with a noticeable change in land use from agrarian to light industrial/utility. These KOPs were taken from Hardin Heights Road with E.W. Brown Generating Station directly behind the photographer. There are no sensitive receptors or residences in the immediate area of KOPs 11-13 and the proposed development would be visible only to vehicular traffic traveling along Hardin Heights Road; therefore the duration of visibility would be limited to a few minutes. The primary visual effect from these KOPs is the expansion of the existing industrial setting provided by the adjacent E.W. Brown Generating Station facilities.

The proposed developments will also be visible to vehicles traveling south along Hardin Heights Road in the vicinity of KOPs 14 and 15. The primary visual effect from the east-to-west perspective along this stretch of Hardin Heights Road will be a change in land use from agrarian to light industrial/utility. There is minimal vegetation on the eastern border of the project site that provides negligible screening of the views for the affected users of Hardin Heights Road (primarily residents of property along the western shore of Herrington Lake). However, contrast effects from these KOPs would again be insignificant because the duration of visibility would be very limited (less than one minute).

Visual effects of the proposed project on lakefront residents along Hardin Heights Road to the east would be negligible due to a sharp rise in elevation between their homes and Hardin Heights Road, which obscures the proposed Solar PV Unit development area.

Although the proposed developments would be visible from KOPs 2 and 6, E.W. Brown Generating Station and plumes from its stacks would also be visible in the background. The visual effects produced by E.W. Brown Generating Station and its ancillary facilities create an existing dominant industrial viewshed from KOPs 2 and 6, which allows the proposed developments to be more compatible with the existing viewshed from these perspectives. The visual impacts from development of the proposed solar and ancillary facilities would be minor.

Effects to the viewshed from KOP 9 along Curdsville Road to the northwest of the proposed site would be minor. Again, this KOP occurs along a roadway and the site would be visible only to vehicles traveling Curdsville Road. Therefore the viewing duration would be limited to a few minutes and only present for the winter season when

vegetation is bare of foliage. As with the other KOPs from which the project site is visible, the E.W. Brown Generating Station imposes an existing dominant industrial viewshed.

4.10 Mitigation

The visual effects described in the preceding section are notable only on a very localized scale with views that are limited in duration. Taken in context with the existing industrial viewshed dominated by the stacks and associated coal/gas-fired and hydroelectric generating units and supporting infrastructure at the E.W. Brown Station – which are visually dominant from all assessed KOPs – these changes are minimal. Furthermore, the proposed Solar PV arrays are directly visible only from a few of the KOPs, limited to views from vehicles traveling along Hardin Heights Road at the southern boundary of the current E.W. Brown Generating Station. This road is utilized almost exclusively by residents of lakefront homes along the western shore of Herrington Lake accustomed to traversing this road with its view of the existing E.W. Brown Generating Station.

Based on these circumstances, it is concluded that the proposed Solar PV Unit development does not represent any significant impact on the surrounding scenic environment, and no mitigative measures are required.

5.0 PROPERTY VALUE ASSESSMENT

Pursuant to KRS 278.708(3)(c), this section of the SAR provides an evaluation of the potential changes in property values resulting from the siting, construction, and operation of the proposed installation of a Solar PV Unit at KU's E.W. Brown Generating Station for property owners adjacent to the facility. This evaluation includes an overview of land use compatibility, a description of the surrounding property characteristics, and an analysis of the potential impact to adjacent property values.

5.1 Land Use Compatibility

The site is in the southeastern part of Mercer County along the border with Garrard County. Hardin Heights Road, which provides access to residents of lakefront homes along the adjacent Herrington Lake, forms the site's eastern border. Herrington Lake has existed since the 1920's when a dam was constructed for hydroelectric power generation. The existing plant has hydroelectric, coal-fired, and simple cycle natural gas fired electric generating units. The surrounding area is composed of family farms and single family homes including lakefront residential properties. The proposed facility will be constructed on a 153 acre parcel of farmland on the southern end of the existing E.W. Brown Generating Station property. This property was purchased by KU in June 2011. It is also bordered by farmland and lakefront properties.

Based on the surrounding land use and the historical use of area properties for power generation, it is clear that the area is compatible with the proposed site operations.

5.2 Property Valuation

This section evaluates the potential for changes in adjacent property values from the proposed construction and operation of the Solar PV Unit adjacent to the existing E.W. Brown Station. The other sources of power generation at the site (hydroelectric, coal-fired generation, and natural gas units) will continue to be in operation during construction and following commercialization of the proposed Solar PV Unit.

The proposed Solar PV Unit property is located in Harrodsburg, Kentucky in Mercer County. The town center of Harrodsburg is 7 miles west-southwest of the site. The Peninsula Golf Resort that began operation in 1997 is a golf community located across Herrington Lake in Garrard County. Other nearby towns include Wilmore, Nicholasville, Danville, and Lancaster. Exhibit 5.1 shows the location of the site and these nearby towns.

The evaluation is based on readily available data from the Mercer County Property Value Administrator (PVA) offices and an online real estate database operated by

Zillow. The data is summarized in Table 5.1. Adjacent property data are available from the Property Value Administrator in Mercer County. Individual home sales data are collected from Zillow.

Exhibit 5.1 Geographic Area of Study

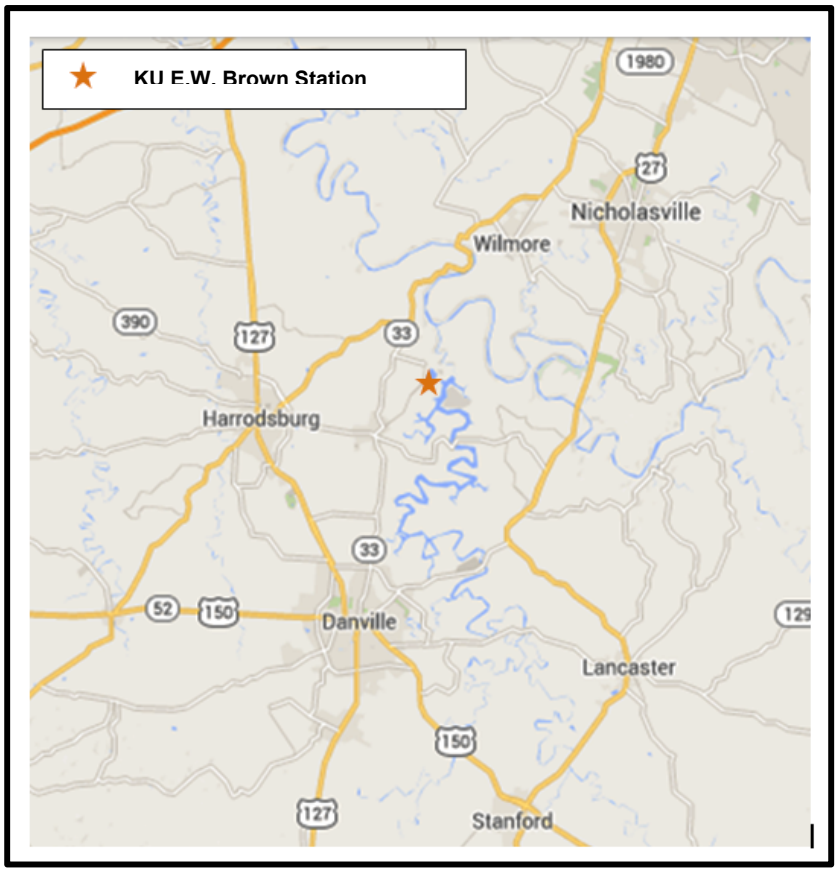


Table 5.1 Available Data and Sources

Source	Description	Data of Interest	Geographic Level Used	Time Period Used
Mercer County Property Value Administrator Offices (PVA)	Maintains a database of all county property parcels for the purpose of tax assessment	Type of property, general description, acreage, and assessment value	Adjacent properties	2013
Zillow	Online database of US home sales	Recent home sales price and date	Within 10 miles of plant property	2011-2013

5.2.1 Description of Adjacent Property Values

This section describes the types of properties immediately surrounding the facility and their potential marketplace value using tax assessment data. The surrounding area is composed of family farms and single family homes including lakefront residential properties. Altogether, there are 54 properties adjacent to the plant property. Fifteen of these properties are adjacent to the 153 acre parcel where the solar panels will be installed (Hardin Estate). A list of the adjacent farms is shown in Table 5.2.

Table 5.2 – Adjacent Farm Class Properties, Mercer County

Primary Parcel Number	Adjacent to Hardin Farm	Total Farm Acres	Total Fair Cash Value ($)	Total Fair Cash Value per acre ($)
070.00-00001.00	N	2,609	2,054,796	787.58
078.00-00004.00	N	14	56,000	4,000.00
078.00-00010.00	N	117.41	404,145	3,442.17
078.00-00017.00	N	11.5	138,608	12,052.87
078.00-00018.00	N	75	165,291	2,203.88
078.00-00020.00	N	57.7	193,520	3,353.90
078.00-00021.00	N	47.58	221,556	4,656.49
079.00-00011.00	N	185	509,083	2,751.80
079.00-00012.00	N	49	246,955	5,039.90
079.00-00013.00	N	54	198,305	3,672.31
079.00-00006.00	Y	87	231,197	2,657.44
Summary Statistics				
Minimum		12	56,000	788
Maximum		2,609	2,054,796	12,053
Average		301	401,769	4,056

There are 11 farms ranging in size from 11.5 to 2,609 acres. The combined farm acreage is about 3,300 acres. The property value administrator assesses these properties at their fair cash value. The total fair cash value for adjacent farms ranges from $56,000 to $2 million. The value per acre ranges from $788 to $12,000 with an average of about $4,000.

A list of the adjacent residences is shown in Table 5.3. There are 43 residential properties, 30 of which are on Lake Herrington. The properties range in size from less than an acre to about 6 acres. The average assessment value per square foot is approximately $63.

Table 5.3 – Adjacent Residential Class Properties, Mercer County

Number	Parcel Number(s)	Adjacent to Hardin Farm	Description	Lot Size (Acres)	Living Space (Square Feet)	Total Taxable Value ($)	Value per Square Foot ($)
1	078.00-00008.04	N	Mobile home and farm acres	5.87		22,545	
2	078.00-00008.06	N	Mobile home	5.25	1,680	64,021	38.11
3	078.00-00008.11	N	Lot	5.32		35,431	
	078.00-00008.11.M1		Mobile home and garage		1,040	34,330	33.01
4	078.00-00008.12	N	Mobile home and garage	6.04	1,824	90,870	49.82
5	078.00-00008.13	N	Single family home	5.00	752	19,500	25.93
6	078.00-00008.16	N	Mobile home	6.16	1,680	113,500	67.56
7	078.00-00011.00	N	Single family home	1.60	1,256	53,096	42.27
8	078.00-00012.00	N	Single family home	2.00	600	15,000	25.00
9	078.00-00013.02	N	Lot	4.60		16,100	
10	078.00-00021.01	N	Single family home	2.46	4,363	227,650	52.18
11	079.40-01017.00	N	Lake front house and lot	0.58	2,548	215,000	84.38
12	079.40-01018.00	N	Lake front house and lot		3,564	175,842	49.34
13	079.40-01019.00	N	Lake front house, lot, and garage		3,599	200,842	55.80
14	079.40-01020.00	N	Lake front house and lot		1,088	50,000	45.96
15	079.40-01021.00	N	Lake front house and lot		1,148	96,796	84.32
16	079.40-01022.00	N	Lake front house and lot		2,298	158,589	69.01
17	079.40-01023.00	N	Lake front house, lot, and garage		2,280	114,750	50.33
18	079.40-01024.00	N	Lake front house and lot		2,896	146,000	50.41
19	079.40-01025.00	N	Lake front house and lot		1,416	129,000	91.10
20	079.40-01026.00	N	Lake front house and lot		1,240	122,373	98.69
21	079.40-01027.00	N	Lot			46,500	
22	079.40-01028.00	N	Lake Front House and Lot X2		1,716	206,867	120.55
23	079.40-01029.00	N	Lot			20,000	
24	079.40-01030.00	N	Lake front house and lot		1,564	136,800	87.47
25	079.40-01031.00	N	Lake front house and lot		1,700	90,863	53.45
26	079.40-01032.00	N	Lot			10,000	
27	079.40-01033.00	N	Lake front house and lot		1,680	115,000	68.45
28	079.40-01034.00	Y	Lake front house and lot	1.92	4,476	168,835	37.72
29	079.40-01034.01	Y	Lake front house, lot, and block building	1.98	4,508	243,518	54.02
30	079.40-01016.00	Y	Lake front house and lot		2,384	217,600	91.28
31	079.40-01015.00	Y	Lake front house, lot, and garage		4,248	174,420	41.06
32	079.40-01014.00	Y	Lakefront house, lot, and garage/shop		3,280	270,964	82.61
33	079.40-01013.00	Y	Lakefront house, lot, and brick garage		2,988	192,219	64.33
34	079.40-01012.00	Y	Lake front house and lot		5,382	192,000	35.67
35	079.40-01011.00	Y	Lake front house and lot		5,648	257,893	45.66
36	079.40-01009.00	Y	Lake front house and lot		2,128	275,855	129.63
37	079.40-01008.00	Y	Lakefront house, lot, and garage		2,538	215,148	84.77
38	079.40-01007.00	Y	Lake front house and lot		2,312	180,000	77.85
39	079.40-01006.00	Y	Lake front house and lot		2,256	131,861	58.45
40	079.40-01005.00	Y	Lake front house and lot		1,560	108,578	69.60
41	079.40-01003.00	Y	Lake front house, lot, and garage		5,272	267,663	50.77
42	079.40-01002.00	Y	Lake front house and lot		1,416	126,972	89.67
43	079.40-01001.00	Y	Lake front house and lot		4,020	221,244	55.04
Summary Statistics							
Minimum				0.58	600	10,000	25.00
Maximum				6.16	5,648	275,855	129.63
Average				3.75	2,535	135,728	63.45

If property values had been affected by the existing nearby facility, one might expect to see lower sales prices for adjacent properties compared to surrounding regions. However, there have not been any marketplace home sales within a mile of the site in the last three years. While ownership of some of the adjacent properties has changed in recent years, these appear to be private sales or gifts between family members. In the next section the evaluation is extended to include home sales within a 10 mile radius.

5.2.2 Description of Recent Home Sale Prices

A database was constructed for home sales using an online real estate database operated by Zillow. The database identified 277 properties within a 10-mile radius, sold in the past 3 years (See the Appendix C, Exhibit A, for the complete list of properties). The 10-mile radius includes homes sold in Harrodsburg, Danville, Wilmore, Lancaster, and Nicholasville. Twenty-three are lakefront properties. These records typically report the address, date sold, and purchase price. A portion of these also includes other characteristics such as number of bedrooms, number of bathrooms, square footage, and lot size.

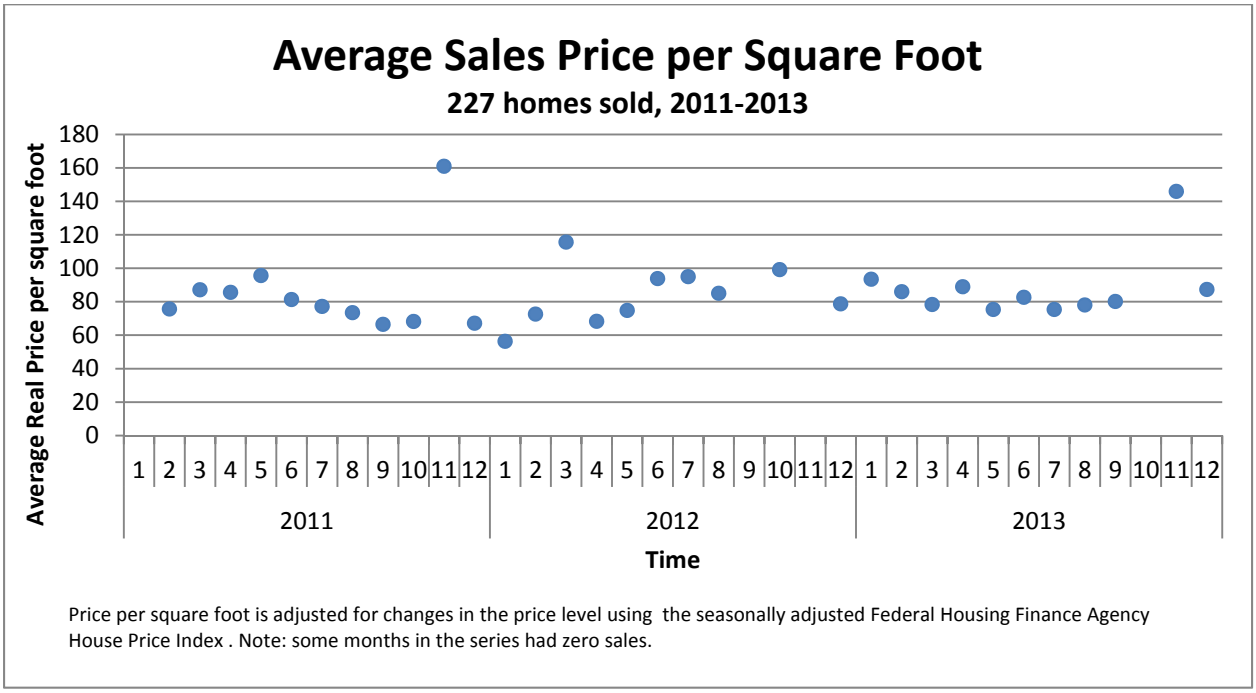
5.2.2.1 Price Per Square Foot Analysis

Total sales price is affected by the square footage of the home among other factors. To account for this, home values were analyzed using the price per square foot. The database includes 227 records with home square footage. The closest property to the site in the recent sales database is a 1,280 square-foot mobile home on 5 acres sold in June 2013 and is 1.3 miles from the site. Chart 5.1 shows the recent trend in residential sale prices over the last three years, adjusted for inflation. The November 2011 data point is heavily influenced by the inclusion of a property that is 245 acres. The home is small and the price is reflective of the lot size, rather than the home size. There was only one sale in November 2013 that includes square footage. The data show that the purchase price per square foot has remained relatively constant over time.

Statistical tests were performed to assess whether proximity to the proposed Solar PV Unit is correlated with sales price. Chart 5.2 plots the price per square foot against distance from the site. The chart demonstrates that in the last three years there have been relatively few home sales within a 3 mile radius. Clustering around 6 and 9.5 miles are homes near the town centers of Wilmore and Danville, respectively. The plot shows a negative relationship between proximity to the site and sales price. A statistical model shows the price per square foot declines as distance increases (See Appendix C, Exhibit B). This result is statistically significant. However, it is possible that the clustering of homes in Wilmore or Danville is heavily influencing the slope of the linear trend line. Furthermore, since the site is near both Lake Herrington and a golf resort community,

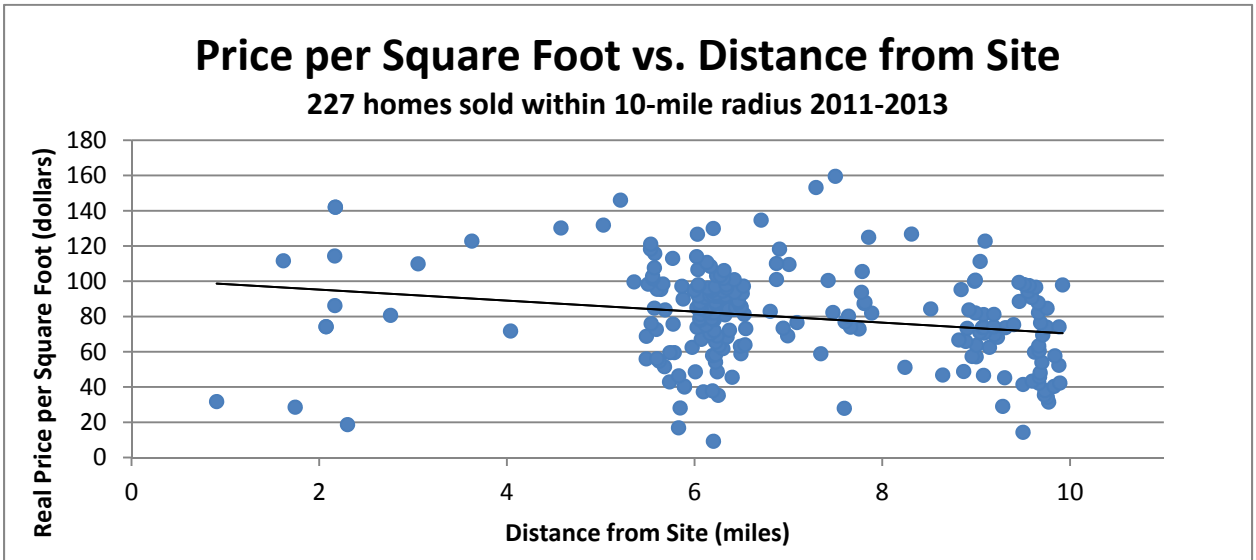
nearby properties may have a higher price because it is desirable to live near a lake or golf community. A second statistical model shows that price per square foot declines as distance from the golf resort increases. This result is also statistically significant.

Chart 5.1 – Recent Trend in Home Prices, Average Sales Price per Square Foot



Price per square foot is adjusted for changes in the price level using the seasonally adjusted Federal Housing Finance Agency House Price Index . Note: some months in the series had zero sales.

Chart 5.2 – Price per Square Foot vs. Distance from the Site



Real price per square foot is adjusted for changes in the price level using the seasonally adjusted Federal Housing Finance Agency House Price Index . Distance from site is the straight-line distance in miles.

Next, a model was constructed to test for a correlation between price and distance while controlling for the size of the property, the year of sale, and whether the property is adjacent to Lake Herrington. The model shows a slight decrease in price per square foot as distance from the site increases, however, this result is not statistically significant (See Appendix C, Exhibit C). The model also shows that, all else equal, the purchase price per square foot is higher for lakefront properties. On average, lakefront properties are about $24 more per square foot. This correlation is statistically significant. There is also a statistically significant correlation between price per square foot and lot size. The purchase price per square foot increases by about $5, all else equal, for each additional acre. This model suggests that once other factors that affect prices are included in the model, there is no relationship between price and distance.

The results are not affected by the inclusion of outliers in the data. Whether extreme high or extreme low values of price or distance are included or excluded, there is not any statistically significant correlation between proximity to the site and price per square foot. Note that the relationship between price and distance may not be strictly linear. Using the logarithm of price and/or distance in the model allows the relationship between these two variables to be non-linear. We test the sensitivity of the results to transformations of these variables and find that logarithmically transforming price, distance, or both does not change the results.

It appears that the price per square foot is higher for properties near the site. However, when other property characteristics such as lot size and whether the property is on the lake are controlled for, the results show no correlation between price and proximity to the site.

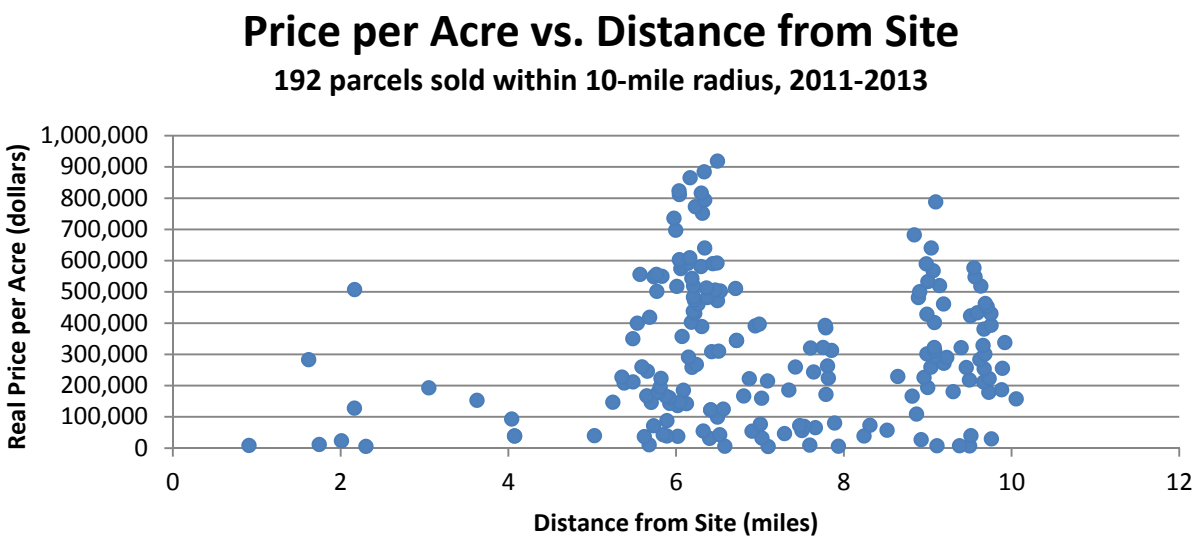
5.2.2.2 Price Per Acre Analysis

Square footage information is not reported for all the properties in the database either because the information is unavailable or because the property does not include a home. Therefore, in this section the analysis is extended to include price per acre. The database includes 192 records with data on acreage. The acreage ranges from less than a quarter of an acre to 245 acres. The median size is half an acre and the mean is 2.8 acres. Chart 5.3 plots the price per acre against distance from the site for these 192 properties.

The data show a decline in price as distance from the site increases; however this result is not statistically significant (See Appendix C, Exhibit D). As with the square foot analysis, a 2nd model controls for the year of sale and whether the property is adjacent to Lake Herrington. Based on a linear regression analysis, there is no correlation between proximity to the site and sales price per acre (See Appendix C, Exhibit E). This

result is not affected by the inclusion of outliers in the data. Whether extreme high or extreme low values of price or distance are included or excluded, there does not appear to be any statistically significant correlation between proximity to the site and price per acre.

Chart 5.3 – Price per Acre vs. Distance from the Site



Real price per square foot is adjusted for changes in the price level using the seasonally adjusted Federal Housing Finance Agency House Price Index . Distance from site is the straight-line distance.
Note: For ease of viewing, 5 data points with price per acre over $1 million are excluded from the graph, their inclusion does not alter the results.

5.3 Conclusion

Since the proposed Solar PV Unit development will be located near an existing power plant site, the site property is compatible with the proposed operations.

An analysis of property values indicates that there is no correlation between price per square foot or price per acre and proximity to the site. No evidence was found to indicate the existing plant is currently having a negative impact on nearby property values. Given that the proposed Solar PV Unit will be located in an area that has historically been a site for power generation and currently has hydroelectric, coal-fired, and natural gas fired units, it is reasonable to conclude that the addition of solar panels to the landscape will not have a significant impact on property values.

Addition of the proposed Solar PV Unit provides for improvement by adding 10 MW of power generation capacity without increasing air emissions, wastewater discharges, generation of wastes, and consumption of non-renewable fossil fuel resources. Considering this improvement and that existing electric generating units at E.W. Brown

Generating Station have not negatively affected area property values, there is no evidence to conclude that the proposed Solar PV Unit development will have a negative impact on local property values.

6.0 NOISE ASSESSMENT

This section provides an assessment of existing ambient noise emissions along the eastern edge of the proposed Solar PV Unit (former Hardin Estate) immediately south of the existing E.W. Brown Generating Station. The section contains a brief overview of acoustics, a description of the existing acoustical environment based on monitoring, assumption of proposed facility noise emissions during construction and operation, an assessment of potential impact, and discussion of mitigative measures.

KU commissioned this noise monitoring study, encompassing the eastern edge of the former Hardin Estate. The purpose of this assessment was to establish the pre-solar panel installation ambient noise level along the property's eastern perimeter which abuts a residential area. This study was conducted by Cardno ATC as part of this site assessment.

6.1 Acoustical Terminology

Environmental noise level assessments quantify noise levels utilizing a variety of parameters and metrics. This section introduces general concepts and terminology related to environmental noise measurements and assessments.

6.1.1 Sound Energy Characteristics

Sound energy is physically characterized by amplitude and frequency. Sound amplitude is measured in decibels (dB) which is the logarithmic ratio of a sound pressure to the typical threshold of human hearing (20 microPascals, abbreviated μPa). 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 and is most sensitive to sounds in the middle frequencies (1,000 to 8,000 Hz). To duplicate this sensitivity, sound energy measurements are weighted by frequency to simulate the frequency response of the human ear to sounds at typical environmental levels. This weighted scale is referred to as the "A weighting" and is denoted as dBA The A-weighting scale emphasizes sounds in the middle frequencies and de-emphasizes sounds in the low and high frequencies. For reference, the A-weighted sound pressure levels associated with some common noise sources are shown in Table 6.1.

Table 6.1 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 during takeoff at a distance of 300 ft.	
120	Threshold of feeling	Elevated Train	Hard rock band
110		Jet flyover at 1000 ft.	Inside propeller plane
100	Very Loud	Power mower, motorcycle at 25 ft., auto horn at 10 ft., crowd noise at football game	
90		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		Farm field with light breeze, birdcalls	Soft stereo music in residence
30	Very Quiet	Quiet residential neighborhood	Bedroom, average residence (without TV and stereo)
20		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

6.1.2 Environmental Noise Metrics

Noise in the environment is constantly fluctuating, such as when a car drives by or a plane passes overhead. The equivalent-continuous sound level, L_{eq} or L_{avg} 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_{avg} (24-hour) is the equivalent-continuous sound level measured over a 24-hour period and provides an indication of the average sound energy over the 24-hour period.

6.2 Human Response to Noise

Human response to noise is highly individualized and 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.

6.3 Applicable Noise Regulations

6.3.1 Local Regulations

No local regulations were identified.

6.3.2 Commonwealth of Kentucky Regulations

The Commonwealth of Kentucky Revised Statutes 224.30-050 contains a qualitative noise law; however, the current statute does not have any enforceable, numerical limits. Therefore, there are no identifiable or enforceable Commonwealth sound level limits that would be applicable to the KU E.W. Brown Generating Station.

6.3.3 Federal Regulations

The U.S. Environmental Protection Agency (EPA) has identified yearly day-night average sound levels, Ldn, sufficient to protect public health and welfare from the effects of environmental noise [EPA Pub. No. 550/9-79-100, 1978]. 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 night time hours. According to the EPA, yearly outdoor levels below an L_{dn} of 55 dBA are sufficient to protect public health and welfare in sensitive areas such as residences, schools, and hospitals. Generally an L_{dn} of 55 dBA equates to a constant sound level (L_{avg}) 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. As guidance documents USEPA recommended levels are not enforceable.

6.4 Existing Acoustical Environment

In order to characterize the existing acoustical environment at the proposed Solar PV Unit 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.

6.4.1 General Community Noise

The existing acoustical environment around the project site is typical of a predominantly rural area. The primary sources of noise include natural sounds and occasional traffic. Areas immediately surrounding the project site are predominantly rural with an adjacent residential area located between the eastern property boundary of the proposed Solar PV Unit development and Harrington Lake.

6.4.2 Survey Procedure and Conditions

The ambient sound level survey was conducted on February 18, 2014, to characterize the existing acoustical environment. The survey was conducted during normal operation of the existing E.W. Brown Generating Station utilizing survey procedures based on general industry test standards including ANSI S12.9 and ANSI S1.13.

In order to effectively quantify and qualify the existing ambient noise level, readings were collected from three locations along the eastern property boundary of the parcel containing the proposed Solar PV Unit development. These locations were selected to capture ambient acoustical levels representative of the nearby noise-sensitive receptors (residential structures east of the project site). At two of the locations, N1 and N2, data was collect using a primary and backup noise meter. Monitoring at location N3 was recorded on only one (primary) noise meter. Each measurement location is identified in Figure 12 and described in Table 6.2.

Table 6.2 Data Collection Point Locations and Descriptions

Location	Description	Latitude (Deg, Decimal Minutes)	Longitude (Deg, Decimal Minutes)	Unit #
N1 Primary	Northeast corner of parcel containing project site	37° 46.663’	84° 42.897’	R3242
N1 Backup	Northeast corner of parcel containing project site	37° 46.663’	84° 42.897’	R3529
N2 Primary	East center of parcel containing project site	37° 46.550’	84° 42.841’	R3549
N2 Backup	East center of parcel containing project site	37° 46.550’	84° 42.841’	R7014
N3 Primary	Southeast Corner of parcel containing project site	37° 46.489’	84° 42.886’	R7018

At each data collection point, Cardno ATC utilized Quest Noise-Pro dosimeters configured to continuously log sound pressure levels at one-minute intervals (with one hour averaging periods) for a 24-hour period. Additionally, the Quest Noise-Pro units were configured to collect data using a slow response, 3.0 dB, exchange rate and an A-

scale weighting. The above configuration was programmed into the units by Pine Environmental and verified by Cardno ATC and all Quest Noise-Pro units were pre-and post-calibrated.

6.4.3 Continuous Monitoring

Continuous noise monitoring was conducted for approximately 24 hours and data was recorded from all three locations. Results of the continuous monitoring provide an indication of daily trends in the ambient sound level for this 24-hour monitoring period, during which the E.W. Brown Generation Station was operating under normal conditions.

The continuous noise monitoring L_{avg} (24-hour) results are detailed in Table 6.3 for the 24-hour study period.

Table 6.3 Background Noise Data - KU E.W. Brown Station. February 18, 2014

Location	Description	Latitude (Deg-Decimal Minutes)	Longitude (Deg-Decimal Minutes)	Unit #	L_{AVG} (dBA)
N1 Primary	Northeast corner of parcel containing project site	37.46.663	84.42.897	R3242	56.1
N1 Backup	Northeast corner of parcel containing project site	37.46.663	84.42.897	R3529	57.3
N2 Primary	East center of parcel containing project site	37.46.550	84.42.841	R3549	59.3
N2 Backup	East center of parcel containing project site	37.46.550	84.42.841	R7014	46.1
N3 Primary	Southeast Corner of parcel containing project site	37.46.489	84.42.886	R7018	57.0

6.5 Environmental Noise Emissions

6.5.1 Equipment Noise Sources

According to the E.W. Brown 10 MW Solar PV Siting Study Review prepared by HDR Engineering, Inc. (December 2013), the E.W. Brown Solar PV Project will be based upon application of standard efficiency multicrystaline technology with nominal 300 Watt panel capacity installed in a fixed array. The design is based on the following criteria:

- AC Rating: 10 MW
- DC Rating: 12.5 MW kW
- DC to AC Conversion Efficiency Factor: 0.80
- Array Tilt: 25 degrees
- Array Azimuth: 0 degrees

The Project will employ approximately 260 300 watt (W) solar PV panels, installed on a fixed tilt, ground mounted racking system comprised of a steel lattice structure.

None of the listed equipment represents a significant source of noise emissions.

6.5.2 Facility Noise Emissions

Although the final system design is not complete it is anticipated that the far field noise emissions will not be increased by the construction or operation of the proposed Solar PV Unit. . Noise sources associated with the proposed Solar PV Unit are limited to electrical equipment (inverters, transformers, and switchgear) which have low noise emission characteristics.

Environmental factors and natural conditions (e.g., wind direction and speed), may allow noise emissions from the proposed facility to be audible at the nearest receptors at certain times. However, the proposed facility's overall impact to background sound levels at the nearest receptors is generally anticipated to be insignificant.

6.6 Construction Noise Emissions

Construction activities are anticipated to include mobilization/site preparation, foundation construction, equipment installation, building structure erection, and site cleanup/demobilization. Construction related noise emissions will vary with each phase of work depending on the activity and the associated equipment. Construction activities should be scheduled during daytime and evening periods (7:00 a.m. to 10:00 p.m.) to the fullest extent possible. Any nighttime construction should be limited to low noise activities to the extent practicable.

6.7 Mitigation

Since no significant impacts are expected to result from the construction or operation of the proposed facility, no significant mitigation is anticipated to be required. However, construction noise should be limited by use of properly maintained equipment with engine mufflers and limiting construction activity to daytime hours, as practicable.

7.0 Traffic Assessment

This section describes the traffic assessment undertaken for the proposed Solar PV Unit at the E.W. Brown Generating Station. Roadways within the project vicinity were reviewed and a roadway capacity analysis performed to determine potential impacts that could result from the construction and operation of the proposed project. Although the majority of the assessment is focused on vehicular impacts to the surrounding roadway network, because of the project's proximity to Herrington Lake and the Norfolk Southern Rail line, the potential impacts to barge and rail systems are also discussed.

Currently, there are existing electric generating units (hydro, coal-fired, and gas-fired) on the site. These existing units will remain in operation throughout construction and after commercialization of the Solar PV Unit. Construction is scheduled to commence in 2015 and projected to last approximately 15 months. The proposed solar-powered PV electric generating plant is expected to be commercialized and on line in 2016.

7.1 Local Roadways

The proposed Solar PV Unit will be installed south of the existing E.W. Brown Generating Station property within an adjacent 153 acre parcel, across Hardin Heights Road. The proposed Solar PV Unit is located east of KY 342 and immediately south of Hardin Heights Road, nestled in between the Norfolk Southern Railway line to the west and Herrington Lake to the east.

Direct vehicular access to the proposed Solar PV Unit will be provided via Hardin Heights Road. Hardin Heights Road is a two-lane, undivided local road that intersects with KY 342 near the northwest tip of the proposed Solar PV Unit property, and provides access to 33 lakefront residential parcels along the eastern extent of Hardin Heights Road and North Hardin Heights Road. Both Harding Heights Road and North Hardin Heights Road terminate along the lakefront without connection to other roadways.

KY 342 is identified by two different local names in the vicinity of the project site. The southern section (Curdsville Road) is approximately 3.25 miles long, extending northeast from its intersection with KY 33 (Shakertown Road) just north of Burgin, Kentucky to a point near the entrance to the E.W. Brown Generating Station (and includes its intersection with Hardin Heights Road). The northern section (Dix Dam Road) runs west, extending approximately 1.25 miles before ending at its second intersection with Shakertown Road, approximately 1.3 miles south of US 68.

A roadway capacity analysis was performed for the main highways near the project that are expected to accommodate travel through Mercer County to the plant. As illustrated in Exhibit 7.1, the study roadways include:

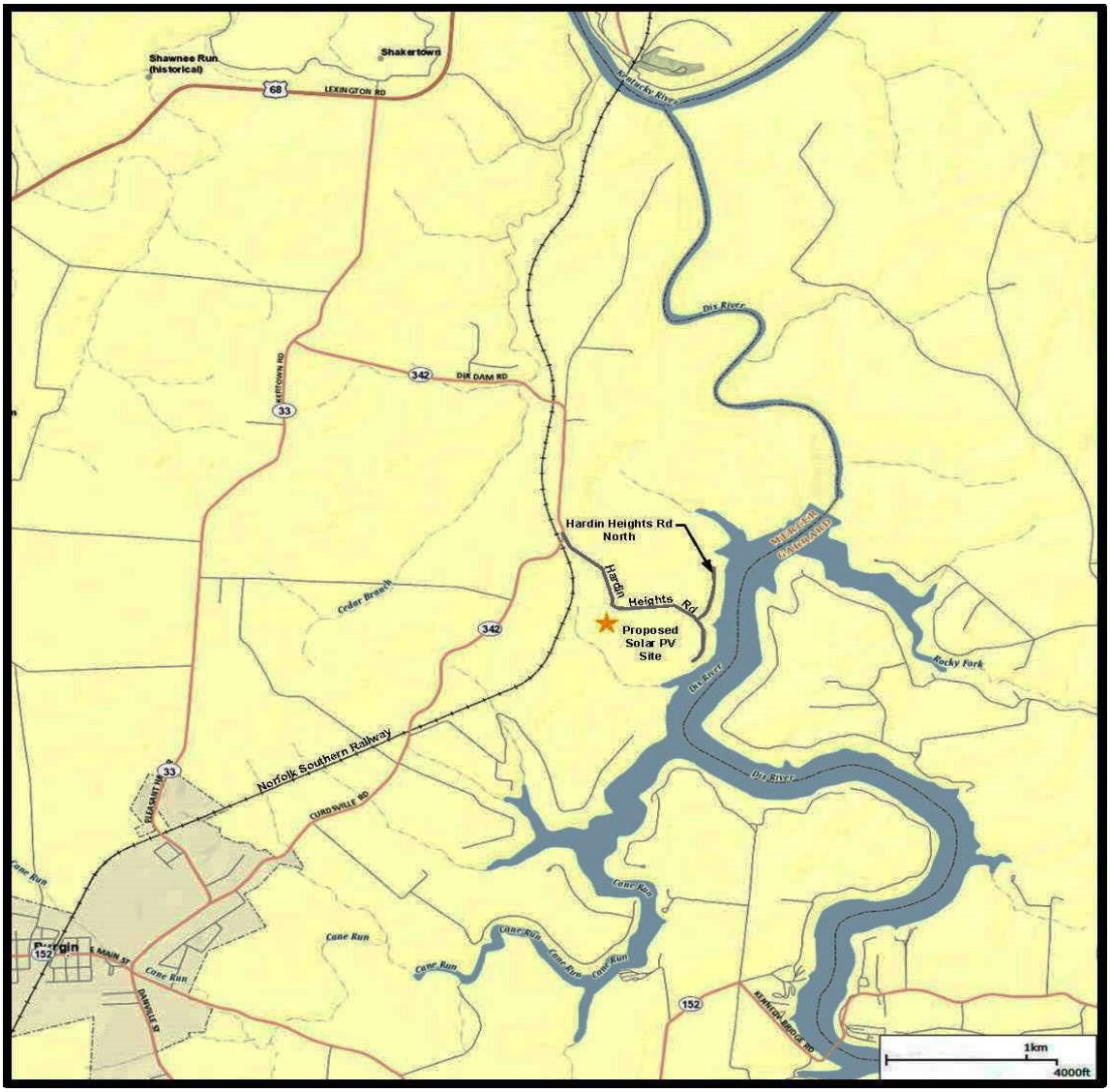


Exhibit 7.1 – Transportation Study Area

- US 68 – two-lane undivided rural major collector arterial running southwest – northeast across Mercer County.

- KY 152 – two-lane undivided rural major collector running east – west across Mercer County.

- KY 33 (Shakertown Road) – two-lane undivided rural major collector running south from its intersection with US Highway 68 and into Boyle County.

- KY 342 - two-lane undivided rural local road running approximately 3.25 miles northeast from its intersection with KY 33 near Burgin, Kentucky, until it becomes

Dix Dam Road, then running west until again intersecting with KY 33 northwest of the proposed Solar PV Unit site.

- Hardin Heights Road – two lane undivided rural local access road running east from KY 342 (Curdsville Road) toward Herrington Lake, then bearing south to its terminus. Harding Heights Road approximates the northern and eastern boundary of the proposed Solar PV site.

According to the Kentucky Transportation Cabinet's (KYTC) Department of Highways traffic count database, existing annual average daily traffic (AADT) volume on US 68 is 2,321 vehicles per day west of KY 33 and 2,942 east of KY 33. The AADT volume on KY 33 is 1,350 north of Hogue Lane and 2,540 south of KY 152. The AADT volume on KY 152 is 4,050 west of KY 33 and 2,070 east of KY 33. The AADT on KY 342 is 698 on the Dix Dam Road section and 1,710 on the Curdsville Road section. AADT traffic count data is not available for Hardin Heights Road; however, there are a total of 33 lakefront parcels on Harding Heights Road and Hardin Heights Road North. This information was calculated to yield a peak-hour peak-direction traffic volume of 66 trips, based on an average of two vehicles per parcel. AADT traffic count data is not available for Hardin Heights Road; however, there are a total of 33 lakefront parcels on Harding Heights Road and Hardin Heights Road North. This information was calculated to yield a peak-hour peak-direction traffic volume of 66 trips, based on an average of two vehicles per parcel.

Hourly peak-hour volume data for these roadways was not available, therefore, based on the American Association of State Highway and Transportation Officials: A Policy on Geometric Design of Highways and Streets (2004), a typical factor of 15 percent of the average daily traffic is considered the hourly peak-hour volume for these roads. Based on the Transportation Research Board Highway Capacity Manual (2010), the capacity of a two-lane roadway is 3,200 vehicles per hour or 1,700 vehicles per hour in one direction.

7.1.1 Potential Impacts from Construction Activities

After start of construction for the proposed Solar PV Unit, site labor is estimated to peak in Month 8 of the project, with 60 construction personnel actively working. It is assumed that 70 percent of the construction personnel will drive their vehicle to the site and the remaining 30 percent will carpool and be contained within the 70 percent driving personal vehicles. This resulting volume is (60 x 0.70 = 42) approximately 42 vehicles entering and leaving the site on a daily basis. With each vehicle making two trips (entering and leaving), the daily trip generation from construction personnel is expected to be 84 trips on a daily basis during the peak month. The standard work week will

include five 10-hour days and the site-generated traffic will most likely occur from 6:00 a.m. to 6:00 p.m. on weekdays. Therefore, the majority of construction related traffic will travel the roads before and after the typical morning (7-9 a.m.) and evening (4-6 p.m.) workday peak periods. Construction personnel will access onsite parking from Hardin Heights Road.

In addition to construction personnel trips, daily truck deliveries will occur on site during construction. The daily deliveries will vary from 0 to 20 truck deliveries expected to peak during Months 6 through 8 of the project. During the peak months, the truck deliveries are expected at 20 deliveries, or 40 daily trips (20 x 2 = 40). These deliveries will include typical construction materials such as mechanical and electrical equipment, construction supplies, concrete and steel. Current plans indicate maintaining heavy construction equipment on site as needed throughout various phases of construction or for the duration of the construction period, thus limiting delivery and return trips.

Various auxiliary service and support vendors will also be accessing the site during construction. These services include portable restrooms, communications and other support services. It is expected that vendors will generate 30 site visits or 60 trips (30 x 2 = 60) per day from their visits during peak construction months.

Altogether, during the peak construction period, there will be an estimated 184 construction related trips (84 personnel + 40 truck deliveries + 60 vendor visits) entering and exiting the site on a daily basis. During peak hour (either AM or PM), there will be 92 construction related trips. It is expected that half of the construction traffic will come from the north on KY 33 and the other half from the south on KY 33. Based on existing travel patterns, 25 percent of traffic from the north is expected to travel to/from the west on U.S. 68 and 25 percent to/from the east on U.S. 68. For the traffic coming from the south, 25 percent is expected to travel to/from the west on KY 152, 12 percent is expected to travel to/from the east on KY 152 and 13 percent to travel to/from the south on KY 33. To determine the total peak-hour / peak-direction volume, a typical 60/40 directional split was applied to the existing traffic and a 90/10 directional split was applied to the construction traffic. Based on the peak-hour / peak-direction total volume on the study roadways, the construction traffic is not expected to adversely affect the roadway capacity. The study roadways are expected to meet capacity with the traffic from the existing facility and the additional traffic from construction activities. The results are summarized in Table 7.1.

TABLE 7.1
Impacts to Roadway Capacity from Construction

Roadway	No. of Lanes	Existing Volume			Construction Trips		Total Volume Peak-Hour Peak Direction	Roadway Capacity (v/hr)	Meets Capacity (Y / N)
		AADT	Peak Hour Volume	Peak-Hour Peak Direction	Distribution	Peak-Hour Peak Direction			
U.S. 68 (West of KY 33)	2LU	2,321	349	210	25%	21	231	1,700	Y
U.S. 68 (East of KY 33)	2LU	2,942	442	266	25%	21	287	1,700	Y
KY 33 (From U.S. 68 to KY 342)	2LU	1,350	203	122	50%	41	163	1,700	Y
KY 33 (From KY 342 KY 152)	2LU	1,350	203	122	50%	41	163	1,700	Y
KY 33 (South of KY 152)	2LU	2,540	381	229	13%	11	240	1,700	Y
KY342 (Dix Dam Road Section)	2LU	698	105	63	50%	41	104	1,700	Y
KY342 (Curdsville Road Section)	2LU	1,710	257	155	50%	41	196	1,700	Y
KY 152 (West of KY 33)	2LU	4,050	608	365	25%	21	386	1,700	Y
KY 152 (East of KY 33)	2LU	2,070	311	187	12%	10	197	1,700	Y
Hardin Heights Road*	2LU	-----	66	66	100%	83	149	1,700	Y

Note: * Hardin Heights Road Volume based on total of 33 existing residences on dead end roads

7.1.2 Fugitive Dust

Potential for fugitive dust emissions will be of most concern during construction activities. During construction, potential fugitive dust emissions will be associated with ground excavation, cut-and-fill operations, on-site transport of materials and equipment, operation of heavy equipment and other activities. The amount and expanse of fugitive dust will vary from day to day, depending on the level of activity and the weather.

Strategies such as best management practices will be employed during construction to limit fugitive dust emissions. Measures may include watering of traffic ways, limiting the area of open excavation/grading areas, and providing temporary cover for soil stockpiles. These strategies will be incorporated in the construction stormwater permit that will be secured for the construction operations and disturbances.

Access throughout the proposed site will be by use of existing paved roads, in conjunction with new paved roads and/or temporary internal unpaved roadways installed during construction. These roads provide direct access to locations necessary for construction activities and therefore fugitive dust emissions should be minimized from onsite traffic.

7.1.3 Road Degradation

The highest traffic volume is anticipated to occur during the construction phase of the Solar PV Unit development. As previously noted, the anticipated construction traffic volume is well 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 during construction activities.

Deliveries of construction equipment and/or facility components to the site via oversized truck loads will conform to weight capacity limitations on the roadways traversed, and necessary permits will be obtained from the KYTC for all such shipments. U.S. 68 and KY 342 (Dix Dam Road), external to the site have a weight limit class of 80,000 lbs. KY 33 and KY 152 have a weight limit class of 62,000 lbs. KY 342 (Curdsville Road) has a weight limit class of 44,000 lbs.

7.2 Potential Impacts from Facility Operation

As previously stated, the existing electric generating units at the E.W. Brown Generating Station will remain in operation during construction and after commercialization of the Solar PV Unit. Analysis of the construction phase determined that roadways will have adequate capacity for the additional traffic. This section summarizes evaluation of the facility after the Solar PV Unit has been installed.

Operation of the Solar PV Unit will not result in additional personnel and will only require infrequent routine maintenance trips. Traffic volumes contributed by E.W. Brown Generating Station (including the Solar PV Unit) following commercialization of the proposed Solar PV Unit will be essentially the same as current conditions. The current E.W. Brown Generating Station traffic volume is included in existing AADT counts which are within the allowable capacity for the roadways. Therefore, no impacts are predicted on roadway capacity as a result of commercialization and operation of the proposed Solar PV Unit. Similarly, since no increases in traffic volume will result from operation of the proposed Solar PV Unit, there will is no increase in potential road degradation.

7.3 Rail and Barge Traffic

There is no direct railroad access to the site and none is planned for the proposed PV electric generating unit. The nearest railroad is a Norfolk Southern Railway line located just west of the site. Note that a spur from this rail line located nearly one mile north of the proposed Solar PV Unit serves E.W. Brown Station and is the primary mode for coal shipments to this facility. Norfolk Southern Railway operates the second highest amount of track within the state and provides commercial rail service, hauling major commodities including coal, farm products, chemicals and metal.

Waterways adjacent to the site, the Dix River and Herrington Lake, do not support barge traffic.

7.4 Mitigation

7.4.1 Roadways

The only increase in traffic volume will occur during an estimated 15 month period for construction of the proposed Solar PV Unit. Existing electric generating units at the E.W. Brown Generating Station will remain in operation throughout construction and after commercialization of the Solar PV Unit. During the peak month of construction, traffic volumes are expected to increase by 184 trips per day, or 92 trips in the peak hour.

After the Solar PV Unit is installed and attains commercialization, the construction traffic will be removed and the trips associated with operations at the E.W. Brown Generating Station (including the Solar PV Unit) will return to pre-construction levels.

Based on the analysis, assessed roadways in the vicinity of the site (U.S. Highway 68, KY 33, KY 152 and KY 342, and Hardin Heights Road) have sufficient roadway capacity to handle the traffic generated by the construction and operation of the proposed Solar PV Unit. No significant impacts to roadway capacity are anticipated due to the traffic generated by the construction and operation of the Solar PV Unit. Once commercialization of the Solar PV Unit is attained, traffic volumes will return to preconstruction volumes on the roadways for current operations.

No mitigation is identified for potential impacts on the surrounding transportation infrastructure based on the results of this analysis.

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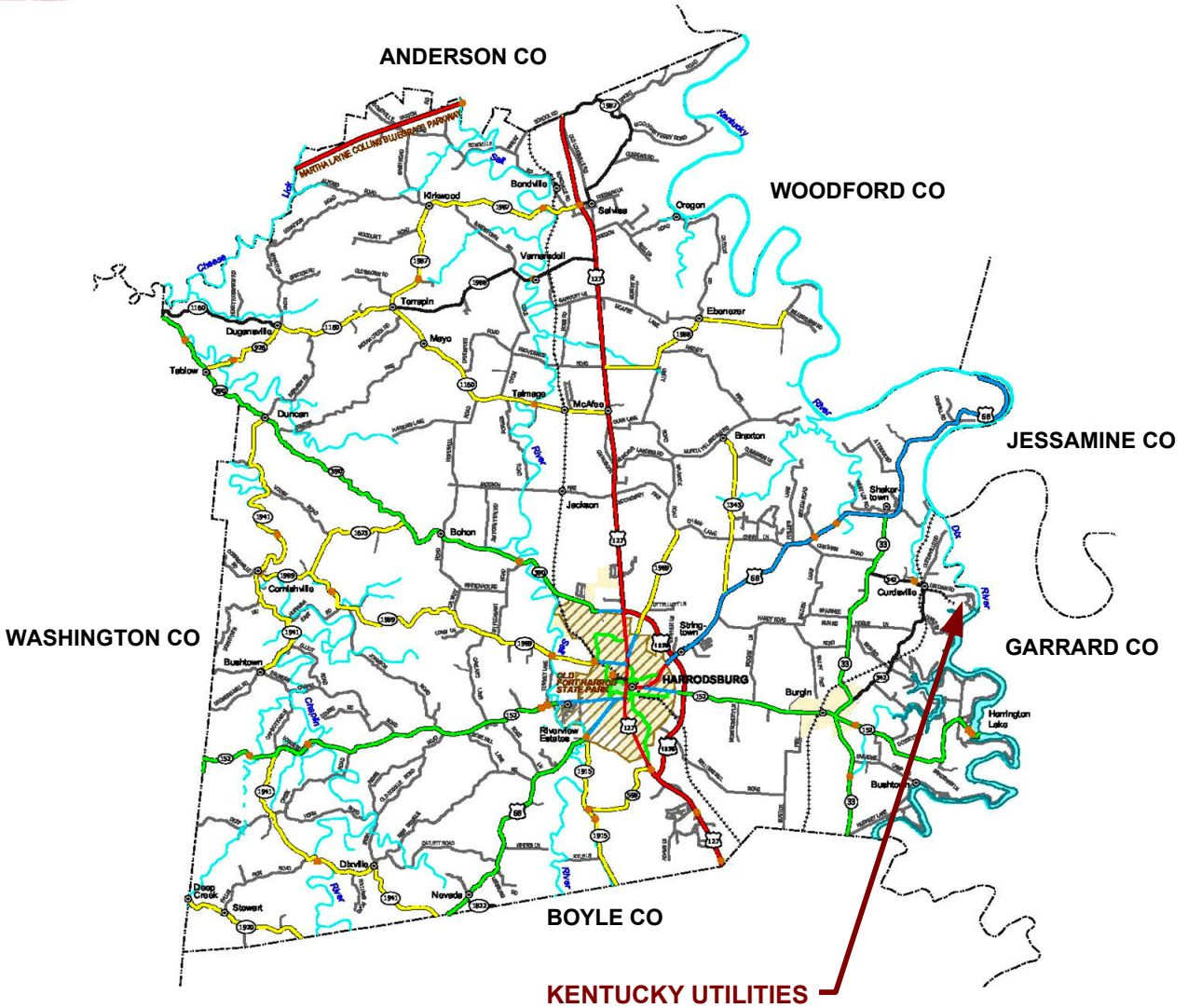
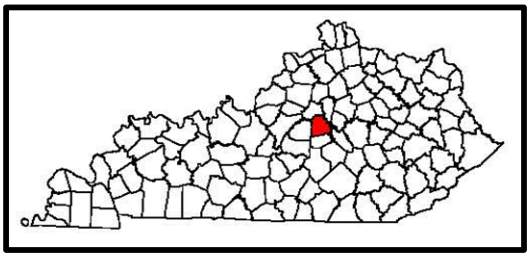
FIGURES





0 4 miles 8 miles

Approximate Graphic Scale (Miles)

SOURCE: KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF PLANNING

DATE: February 25, 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

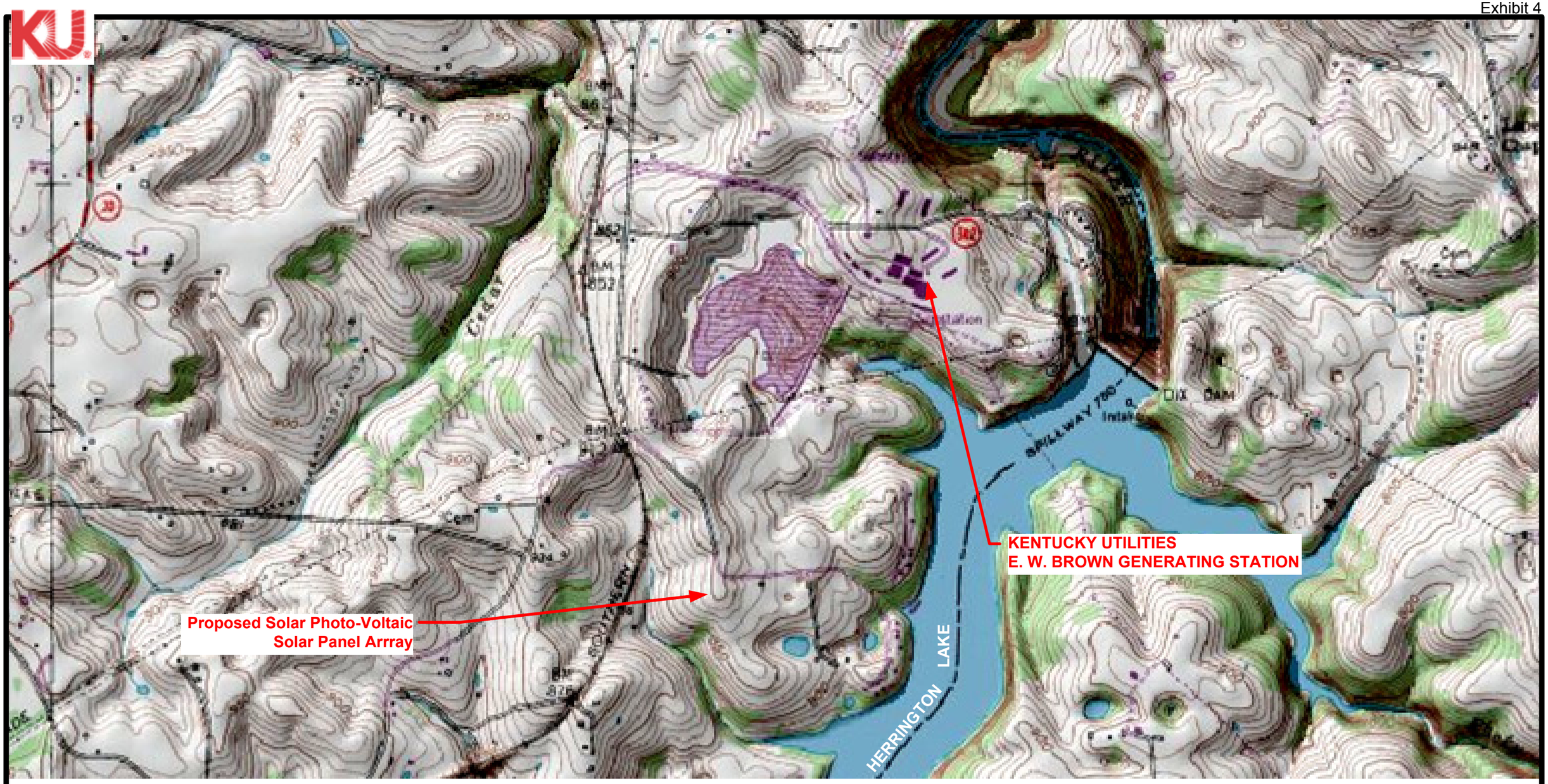
APPROXIMATE SCALE: 1 inch = 4 miles

FIGURE 1

MERCER COUNTY MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299



SOURCE: KENTUCKY GEOLOGIC SURVEY AND USGS 7.5' TOPOGRAPIC QUADRANGLE MAP FOR WILMORE, KY

0 1,500 3,000

Approximate Graphic Scale (Feet)

DATE: 25 February 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,500 feet

N

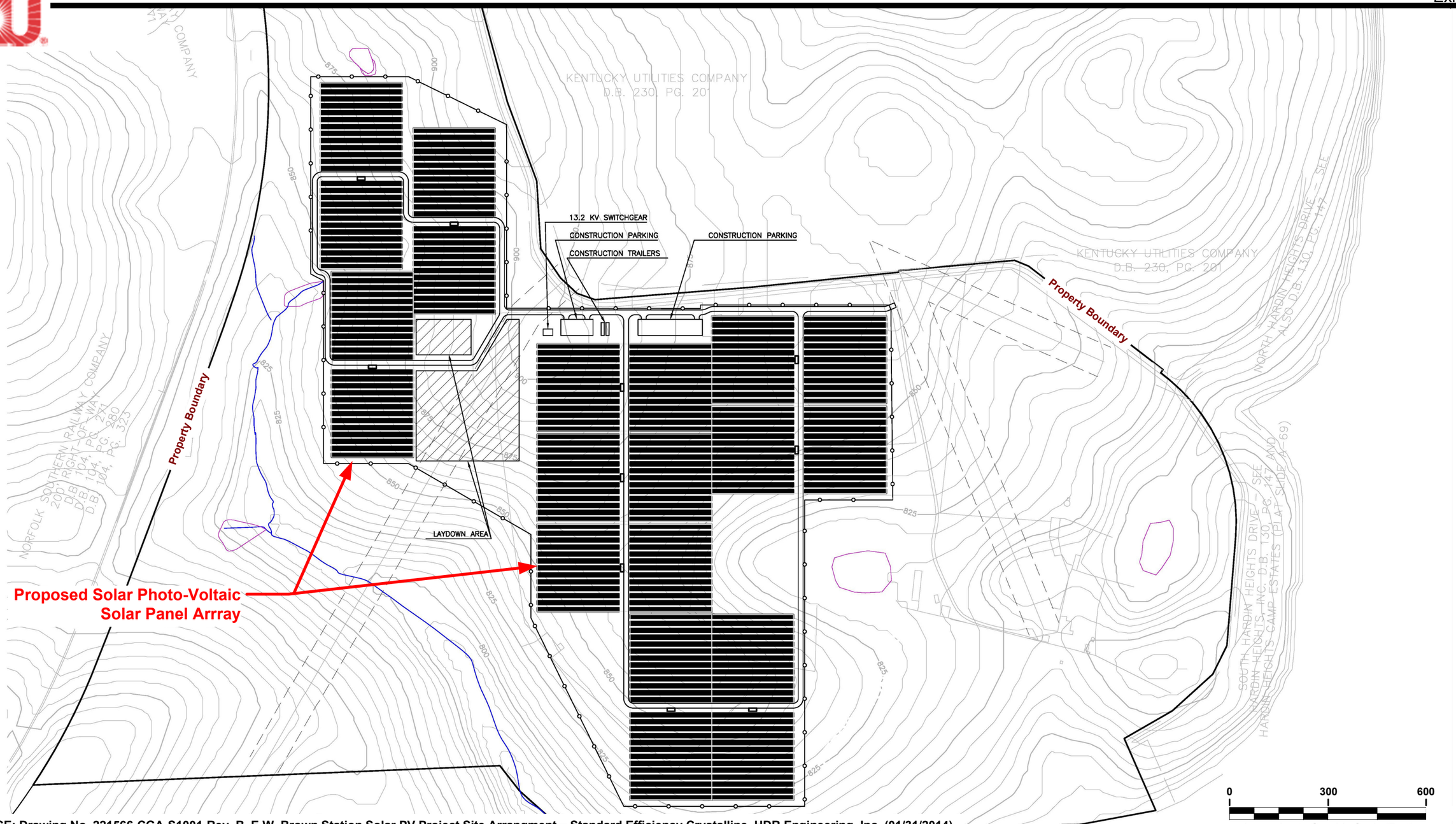
FIGURE 2

TOPOGRAPHIC VICINITY MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299



SOURCE: Drawing No. 221566-CGA-S1001-Rev. B, E.W. Brown Station Solar PV Project Site Arrangment – Standard Efficiency Crystalline, HDR Engineering, Inc. (01/31/2014)

DATE: 14 March 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 300 feet

N

FIGURE 3

PROPOSED SOLAR PV SITE LAYOUT

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

Donald Webb
079.00-00011.00

078-00014.00

Roy Beasley
079.00-00013.00

Kenneth Carey
079.00-00012.00

Kentucky Utilities
E.W. Brown
Generating Station
079.00-00014.01

DIX DAM

CURDS INLET

HERRINGTON LAKE

HARDIN HEIGHTS ROAD

079.40-01033.00 — John Stanko
079.40-01032.00 — Leland Lowe
079.40-01031.00 — Leland Lowe
079.40-01030.00 — Timothy Byrd
079.40-01029.00 — Cloyd Shelley
079.40-01028.00 — Cloyd Shelley
079.40-01027.00 — James Stocker
079.40-01026.00 — John Molla
079.40-01025.00 — Mark Ross
079.40-01024.00 — Kathy Dial
079.40-01023.00 — Kelli Wilcher
079.40-01022.00 — Rebecca Bryant
079.40-01021.00 — Morris Hayes
079.40-01020.00 — Albert Harmon
079.40-01019.00 — Bradley Stokes
079.40-01018.00 — Robert Gillespie
079.40-01017.00 — Kerry Babcock
079.40-01034.00 — Ralph Culp Sr.

SVILLE LANE / HOGUE LANE / SHAWNEE RUN

072.00-00023.00

079.00-00010.01

079.00-00010.00

079.00-00009.01

CURDSVILLE ROAD

Thurman Hardin
079.00-00014.00

Jeffrey Obrien
079.40-01034.01

Proposed Solar PV Unit
Parcel

079.40-01016.00
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079.40-01014.00
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079.00-00007.00

079.20-02018.00

079.00-00006.00

HERRINGTON LAKE

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079.00-0006.01

079.50-01029.00

0 800 1,600
Approximate Graphic Scale (Feet)

SOURCE: FIGURE 3-1, PROPERTY BOUNDARY MAP, E.W. BROWN GENERATING STATION, MERCER COUNTY, KENTUCKY
PROJECT NUMBER: 3143-10-1364 - AMEC EARTH AND ENVIRONMENT (08/02/11)

DATE: 25 February 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 800 feet

N

FIGURE 4

SITE AND SURROUNDING PROPERTIES

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

KENTUCKY UTILITIES
E. W. BROWN GENERATING STATION

Proposed Solar Photo-Voltaic
Solar Panel Arrray

MAP LEGEND

Geologic Units

Qal	Alluvium (Quaternary – Quaternary)
QTf	High-level fluvial deposits (Tertiary – Quaternary)
Ocf	Clays Ferry Fromation (Middle Ordovician – Upper Ordovician)
Olu	Upper part of Lexington Limestone (Lower Ordovician – Middle Ordovician)
Olb	Brannon Member (Lower Ordovician – Middle Ordovician)
Olt	Tanglewood Limestone Member (1) (Lower Ordovician – Middle Ordovician)
Olr	Lower part of Lexington Limestone (Lower Ordovician – Middle Ordovician)
Oto	Tyrone Limestone and Oregon Formation (Lower Ordovician – Middle Ordovician)
Ocn	Camp Nelson Limestone (Lower Ordovician – Middle Ordovician)

Structural Contours

Drawn on Top of Tyrone Limestone

SOURCES: KENTUCKY GEOLOGICAL SURVEY. GEOLOGICAL QUADRANGLE MAP FOR WILMORE, CENTRAL KY, GQ-847 (1970)

0 1,500 3,000
Approximate Graphic Scale (Feet)

DATE: 25 February 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,500 feet

FIGURE 5

GEOLOGIC VICINITY MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

KENTUCKY UTILITIES
E. W. BROWN GENERATING STATION

Proposed Solar Photo-Voltaic
Solar Panel Arrray

LAKE HERRINGTON

Herrington Lake

MAP LEGEND

Karst Potential Units

- High
- Medium
- Mapped Sinkhole Location

Structural Contours

- Drawn on Top of Tyrone Limestone

Kentucky Geologic Map Information Service, Karst Potential Map: URL http://kgs.uky.edu/kgsmap/KGSGeoServer/

0 1,500 3,000
Approximate Graphic Scale (Feet)

DATE: 25 February 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,500 feet

N

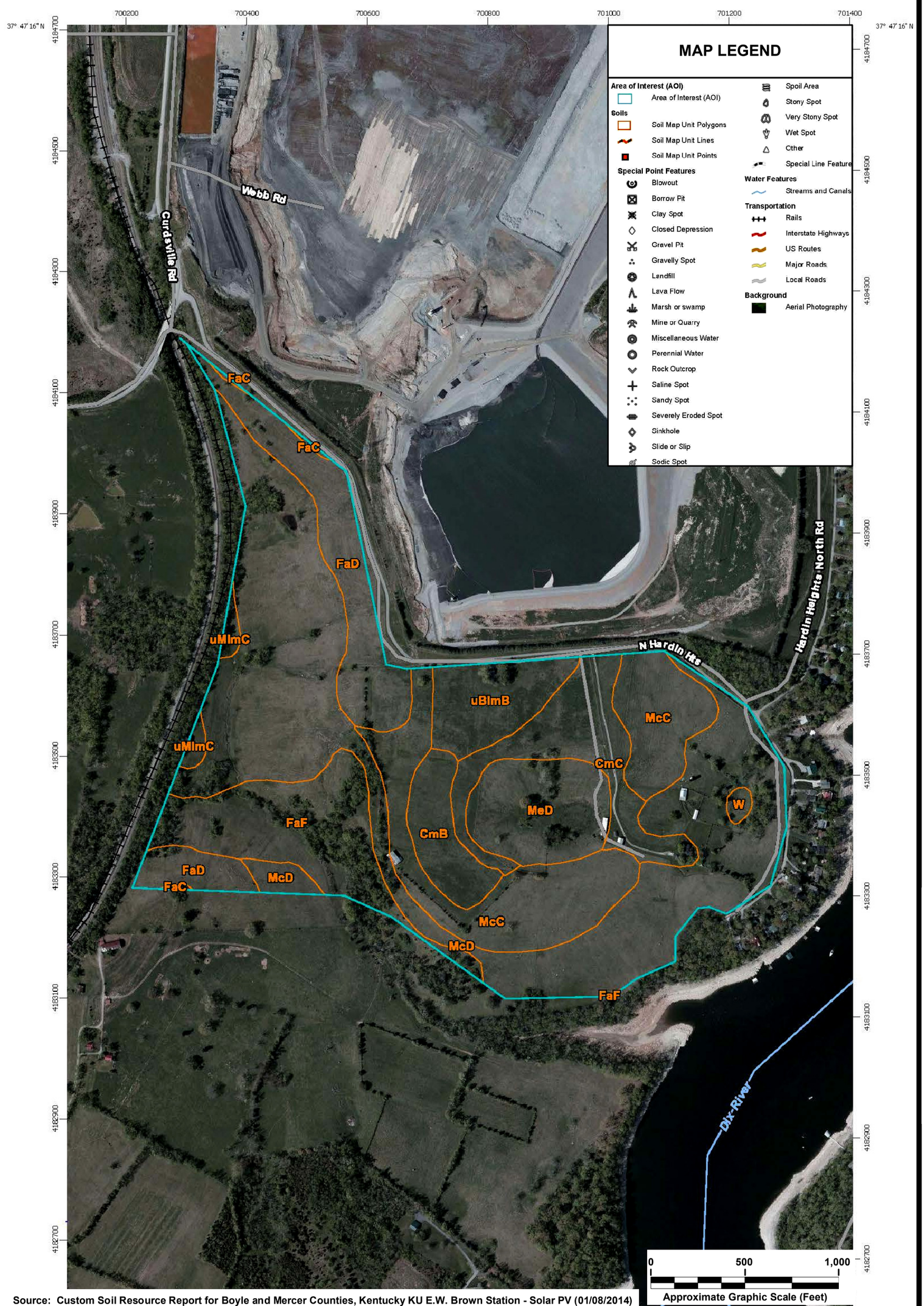
FIGURE 6

KARST POTENTIAL MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299



Source: Custom Soil Resource Report for Boyle and Mercer Counties, Kentucky KU E.W. Brown Station - Solar PV (01/08/2014)

DATE

PROJECT No.: 027.11000.1407

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 500 feet

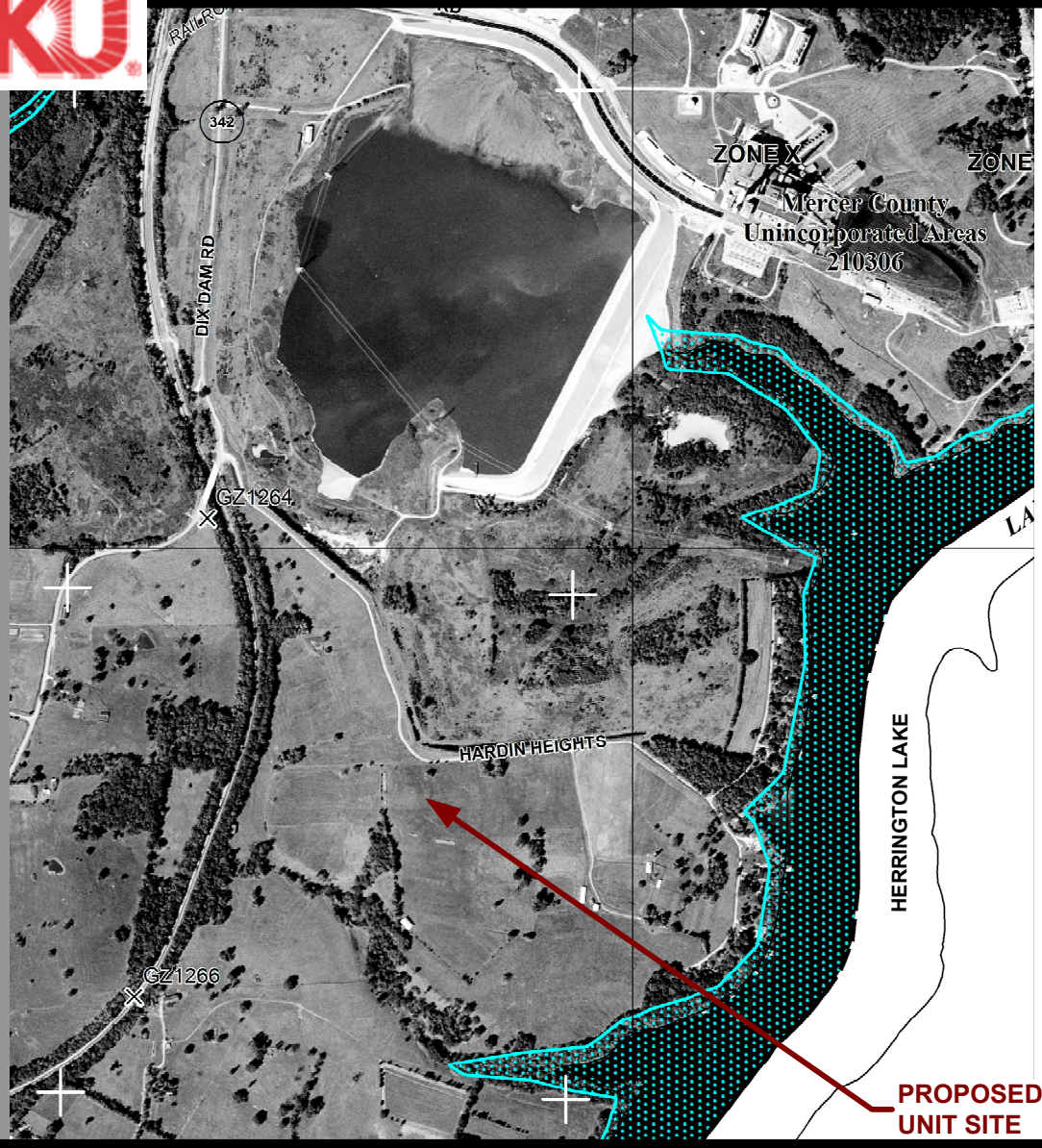
FIGURE 7

SOILS MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

Exhibit 4



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0165C

FIRM

FLOOD INSURANCE RATE MAP

MERCER COUNTY, KENTUCKY
AND INCORPORATED AREAS

PANEL 165 OF 275
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BURGIN, CITY OF	210171	0165	C
MERCER COUNTY	210306	0165	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE: SEPTEMBER 17, 2008

MAP NUMBER: 21167C0165C

Kentucky UNBRIDLED SPIRIT

U.S. DEPARTMENT OF HOMELAND SECURITY

State of Kentucky
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.go

0 1,200 2,400

Approximate Graphic Scale (Feet)

DATE: MARCH 04, 2014

PROJECT No.: 027.11000.1407

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,200 feet

N

FIGURE 8

FEMA FIRMETTE MAP

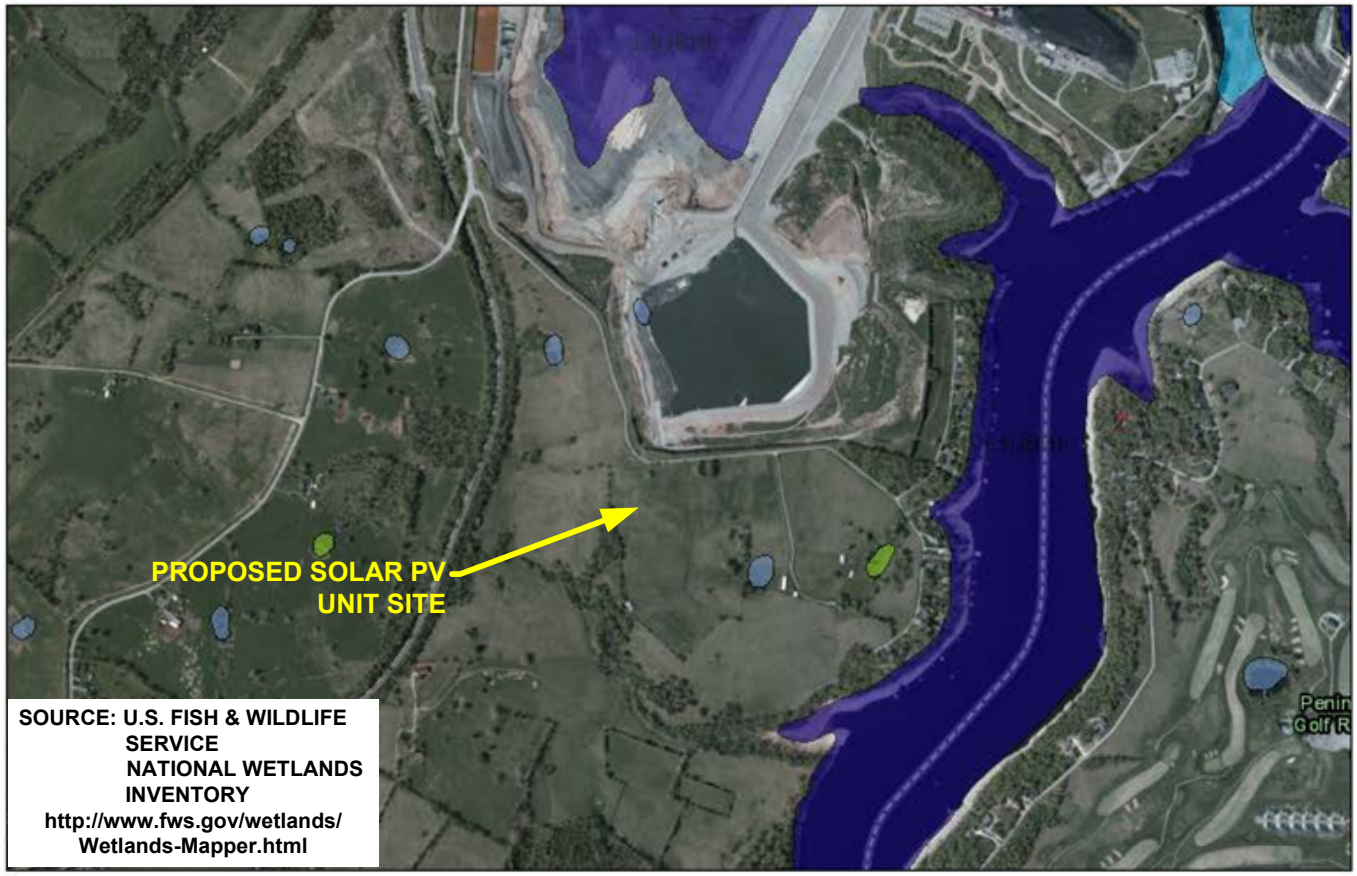
KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

U.S. Fish and Wildlife Service

National Wetlands Inventory



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

SOURCE: U.S. FISH & WILDLIFE SERVICE
NATIONAL WETLANDS INVENTORY
http://www.fws.gov/wetlands/Wetlands-Mapper.html

0 1,000 2,000

Approximate Graphic Scale (Feet)

DATE: MARCH 04, 2014

PROJECT No.: 027.11000.1407

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,000 feet

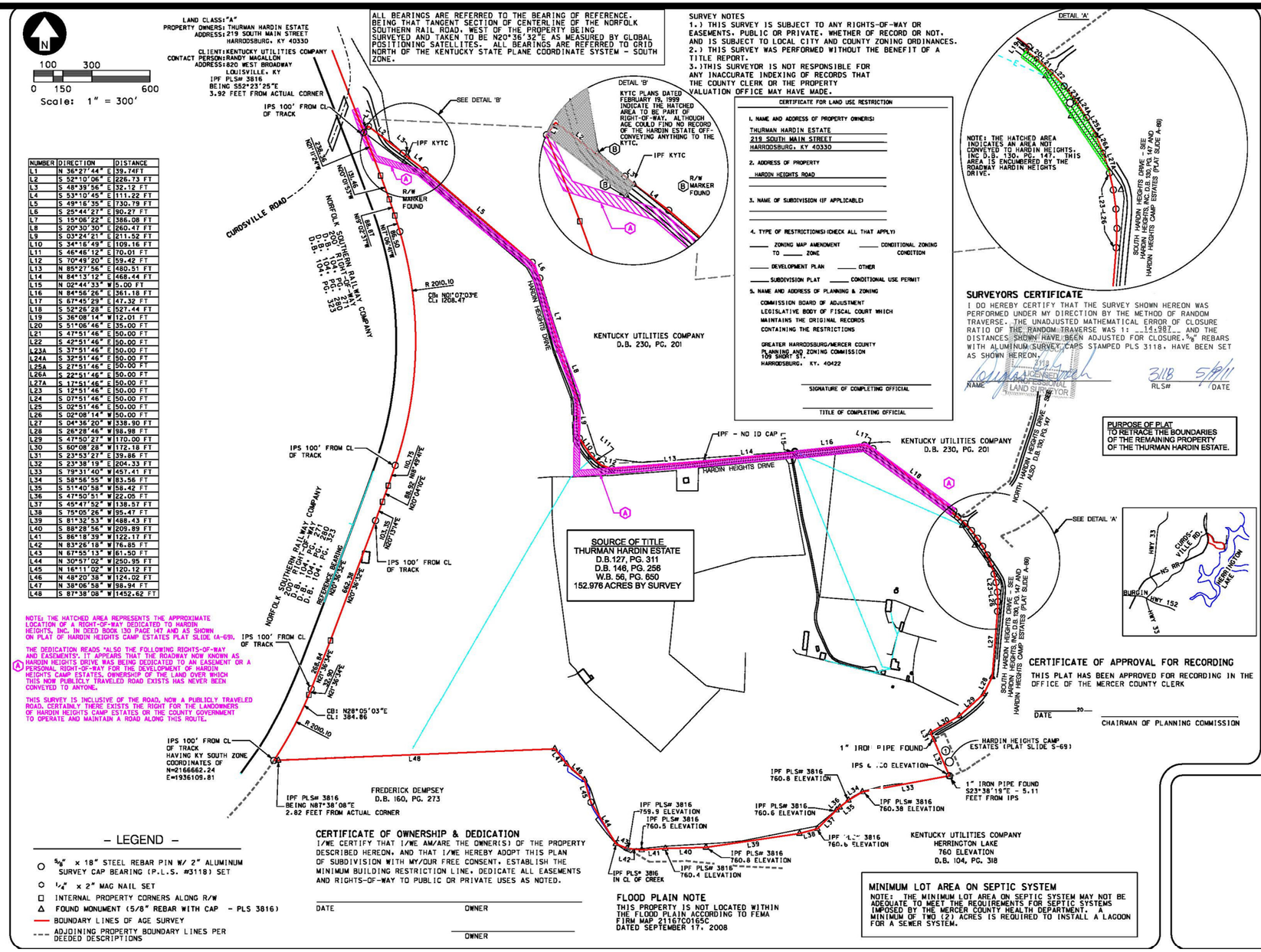
N

FIGURE 9

WETLANDS MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299



NUMBER	DIRECTION	DISTANCE
L1	N 36°27'44" E	39.74FT
L2	S 52°10'06" E	226.73 FT
L3	S 48°39'56" E	32.12 FT
L4	S 53°10'45" E	111.22 FT
L5	S 49°16'35" E	730.79 FT
L6	S 25°44'27" E	90.27 FT
L7	S 15°06'22" E	386.08 FT
L8	S 20°30'30" E	260.47 FT
L9	S 03°24'21" E	211.52 FT
L10	S 34°16'49" E	109.16 FT
L11	S 46°46'12" E	70.01 FT
L12	S 70°49'20" E	59.42 FT
L13	N 85°27'56" E	480.51 FT
L14	N 84°13'12" E	468.44 FT
L15	N 02°44'33" W	5.00 FT
L16	N 84°56'26" E	361.18 FT
L17	S 67°45'29" E	47.32 FT
L18	S 52°26'28" E	527.44 FT
L19	S 36°08'14" W	12.01 FT
L20	S 51°06'46" E	35.00 FT
L21	S 47°51'46" E	50.00 FT
L22	S 42°51'46" E	50.00 FT
L23A	S 37°51'46" E	50.00 FT
L24A	S 32°51'46" E	50.00 FT
L25A	S 27°51'46" E	50.00 FT
L26A	S 22°51'46" E	50.00 FT
L27A	S 17°51'46" E	50.00 FT
L23	S 12°51'46" E	50.00 FT
L24	S 07°51'46" E	50.00 FT
L25	S 02°51'46" E	50.00 FT
L26	S 02°08'14" W	50.00 FT
L27	S 04°36'20" W	338.90 FT
L28	S 26°28'46" W	98.98 FT
L29	S 47°50'27" W	170.00 FT
L30	S 60°08'28" W	172.18 FT
L31	S 23°53'27" E	39.86 FT
L32	S 23°38'19" E	204.33 FT
L33	S 79°31'40" W	457.41 FT
L34	S 58°56'55" W	83.56 FT
L35	S 51°40'58" W	58.42 FT
L36	S 47°50'51" W	22.05 FT
L37	S 45°47'52" W	138.57 FT
L38	S 75°05'26" W	95.47 FT
L39	S 81°32'53" W	488.43 FT
L40	S 88°28'56" W	209.89 FT
L41	S 86°18'39" W	122.17 FT
L42	N 83°26'18" W	76.85 FT
L43	N 67°55'13" W	61.50 FT
L44	N 30°57'02" W	250.95 FT
L45	N 16°11'02" W	120.12 FT
L46	N 48°20'38" W	124.02 FT
L47	N 38°06'58" W	98.94 FT
L48	S 87°38'08" W	1452.62 FT

Age Engineering Services, Inc., Drawing File Name 11093REC. KU E.W. Brown, Boundary Property Survey, Thurman Hardin Estate, 1 Tract Totaling 152.976 Acres by Survey, Mercer County, Kentucky (November 02, 2011)

DATE: 25 February 2014

PROJECT No.: 027.11000.1408

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 600 feet

FIGURE 10

PARCEL MAP

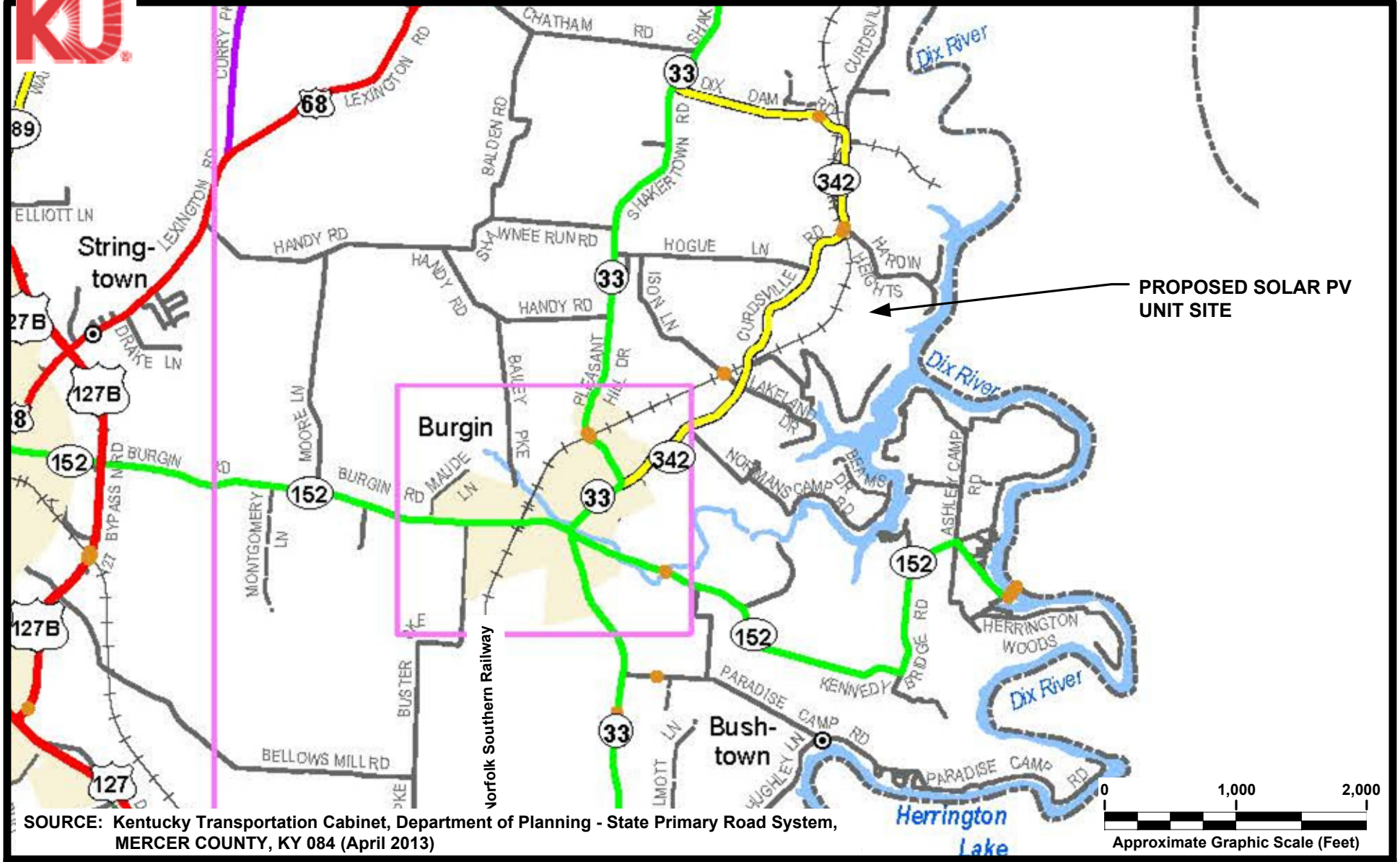
KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

AGE ENGINEERING SERVICES, INC.
P.O. BOX 204
165 FOSTER LANE
SHELBYVILLE, KY 40066
(606) 365-4582 FAX (606) 365-1097

BOUNDARY RETRACEMENT SURVEY
THURMAN HARDIN ESTATE
1 TRACT TOTALING 152.976 ACRES BY SURVEY
MERCER COUNTY, KENTUCKY

Date: 05/02/11 | SCALE: 1" = 300' | DRAWN: D.K. | CHECKED: GOOCH | FILENAME: 11093REC



SOURCE: Kentucky Transportation Cabinet, Department of Planning - State Primary Road System, MERCER COUNTY, KY 084 (April 2013)

DATE: MARCH 04, 2014

PROJECT No.: 027.11000.1407

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 1,000 feet

FIGURE 11

TRANSPORTATION INFRASTRUCTURE MAP

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

DATE: MARCH 04, 2014

PROJECT No.: 027.11000.1407

DRAWN BY: MSE

APPROVED BY: JS

APPROXIMATE SCALE: 1 inch = 500 feet

N

FIGURE 12

BACKGROUND AMBIENT NOISE MONITORING LOCATIONS

KENTUCKY UTILITIES COMPANY
E. W. BROWN GENERATING STATION
815 Dix Dam Road
Harrodsburg, Mercer County, Kentucky 40330

Cardno ATC
11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

APPENDIX A

NRCS CUSTOM SOIL RESOURCES REPORT

United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Boyle and Mercer Counties, Kentucky

March 12, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Exhibit 4

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Boyle and Mercer Counties, Kentucky
Survey Area Data: Version 9, Dec 16, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 17, 2010—Sep 13, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Boyle and Mercer Counties, Kentucky (KY606)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CmB	Chenault gravelly silt loam, 2 to 6 percent slopes	5.0	3.6%
CmC	Chenault gravelly silt loam, 6 to 12 percent slopes	10.3	7.4%
FaC	Fairmount-Rock outcrop complex, 6 to 12 percent slopes	1.7	1.2%
FaD	Fairmount-Rock outcrop complex, 12 to 30 percent slopes	15.1	10.8%
FaF	Fairmount-Rock outcrop complex, 30 to 60 percent slopes	19.1	13.6%
McC	McAfee silt loam, 6 to 12 percent slopes	20.2	14.5%
McD	McAfee silt loam, 12 to 20 percent slopes	51.4	36.8%
MeD	McAfee-Rock outcrop complex, 12 to 20 percent slopes	9.0	6.4%
uBlmB	Bluegrass-Maury silt loams, 2 to 6 percent slopes	6.4	4.6%
uMlmC	Maury-Bluegrass silt loams, 6 to 12 percent slopes	0.9	0.7%
W	Water	0.5	0.3%
Totals for Area of Interest		**139.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be

made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Boyle and Mercer Counties, Kentucky

CmB—Chenault gravelly silt loam, 2 to 6 percent slopes

Map Unit Setting

Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition

Chenault and similar soils: 90 percent
Minor components: 10 percent

Description of Chenault

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Old fine-loamy alluvium over clayey residuum weathered from limestone

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: B

Typical profile

0 to 11 inches: Gravelly silt loam
11 to 41 inches: Gravelly silty clay loam
41 to 49 inches: Gravelly clay
49 to 53 inches: Unweathered bedrock

Minor Components

Caleast

Percent of map unit: 3 percent

Mcafee

Percent of map unit: 3 percent

Elk

Percent of map unit: 2 percent

Woolper
Percent of map unit: 2 percent

CmC—Chenault gravelly silt loam, 6 to 12 percent slopes

Map Unit Setting
Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition
Chenault and similar soils: 90 percent
Minor components: 10 percent

Description of Chenault

Setting
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Old fine-loamy alluvium over clayey residuum weathered from limestone

Properties and qualities
Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups
Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile
0 to 11 inches: Gravelly silt loam
11 to 41 inches: Gravelly silty clay loam
41 to 49 inches: Gravelly clay
49 to 53 inches: Unweathered bedrock

Minor Components

Caleast
Percent of map unit: 3 percent

Chenault, grv-subsoil
Percent of map unit: 3 percent

Mcafee
Percent of map unit: 2 percent

Woolper
Percent of map unit: 1 percent

Elk
Percent of map unit: 1 percent

FaC—Fairmount-Rock outcrop complex, 6 to 12 percent slopes

Map Unit Setting
Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition
Fairmount and similar soils: 75 percent
Rock outcrop: 10 percent
Minor components: 15 percent

Description of Fairmount

Setting
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Properties and qualities
Slope: 6 to 12 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 6s
Hydrologic Soil Group: D

Typical profile

0 to 6 inches: Flaggy silty clay loam
6 to 14 inches: Flaggy silty clay
14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (three-dimensional): Free face
Parent material: Limestone

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 8

Minor Components

Faywood

Percent of map unit: 3 percent

Mcafee

Percent of map unit: 3 percent

Caleast

Percent of map unit: 3 percent

Chenault

Percent of map unit: 2 percent

Eden

Percent of map unit: 2 percent

Lowell

Percent of map unit: 2 percent

FaD—Fairmount-Rock outcrop complex, 12 to 30 percent slopes

Map Unit Setting

Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition

Fairmount and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent

Description of Fairmount

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Properties and qualities

Slope: 12 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6s
Hydrologic Soil Group: D

Typical profile

0 to 6 inches: Flaggy silty clay loam
6 to 14 inches: Flaggy silty clay
14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Landform: Hills
Landform position (three-dimensional): Free face
Parent material: Limestone

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 8

Minor Components

Lowell

Percent of map unit: 3 percent

Caleast

Percent of map unit: 3 percent

Faywood

Percent of map unit: 3 percent

Mcafee

Percent of map unit: 3 percent

Eden
Percent of map unit: 2 percent

Chenault
Percent of map unit: 1 percent

FaF—Fairmount-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting
Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition
Fairmount and similar soils: 65 percent
Rock outcrop: 25 percent
Minor components: 10 percent

Description of Fairmount

Setting
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from limestone

Properties and qualities
Slope: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.1 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 7s
Hydrologic Soil Group: D

Typical profile
0 to 6 inches: Flaggy silty clay loam
6 to 14 inches: Flaggy silty clay
14 to 18 inches: Unweathered bedrock

Description of Rock Outcrop

Setting
Landform: Hills
Landform position (three-dimensional): Free face
Parent material: Limestone

Properties and qualities
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 8

Minor Components

Mcafee
Percent of map unit: 3 percent

Very shallow soils
Percent of map unit: 3 percent

Eden
Percent of map unit: 2 percent

Faywood
Percent of map unit: 2 percent

McC—McAfee silt loam, 6 to 12 percent slopes

Map Unit Setting
Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition
Mcafee and similar soils: 85 percent
Minor components: 15 percent

Description of Mcafee

Setting
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 30 inches: Clay
30 to 34 inches: Unweathered bedrock

Minor Components

Caleast

Percent of map unit: 5 percent

Maury

Percent of map unit: 4 percent

Fairmount

Percent of map unit: 3 percent

Chenault

Percent of map unit: 2 percent

Rock outcrop

Percent of map unit: 1 percent

McD—McAfee silt loam, 12 to 20 percent slopes

Map Unit Setting

Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition

Mcafee and similar soils: 85 percent
Minor components: 15 percent

Description of Mcafee

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4e
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 30 inches: Clay
30 to 34 inches: Unweathered bedrock

Minor Components

Caleast

Percent of map unit: 5 percent

Fairmount

Percent of map unit: 4 percent

Mcafee, gravelly

Percent of map unit: 4 percent

Chenault

Percent of map unit: 1 percent

Rock outcrop

Percent of map unit: 1 percent

MeD—McAfee-Rock outcrop complex, 12 to 20 percent slopes

Map Unit Setting

Elevation: 480 to 1,360 feet

Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition

Mcafee and similar soils: 60 percent
Rock outcrop: 20 percent
Minor components: 20 percent

Description of Mcafee

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4s
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 30 inches: Clay
30 to 34 inches: Unweathered bedrock

Description of Rock Outcrop

Setting

Landform: Hills
Landform position (three-dimensional): Free face
Parent material: Limestone

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 8

Minor Components

Caleast

Percent of map unit: 8 percent

Fairmount
Percent of map unit: 7 percent

Gravelly clayey soil
Percent of map unit: 3 percent

Loamy soils
Percent of map unit: 2 percent

uBlmB—Bluegrass-Maury silt loams, 2 to 6 percent slopes

Map Unit Setting
Elevation: 540 to 1,060 feet
Mean annual precipitation: 39 to 53 inches
Mean annual air temperature: 46 to 65 degrees F
Frost-free period: 163 to 192 days

Map Unit Composition
Bluegrass and similar soils: 50 percent
Maury and similar soils: 40 percent
Minor components: 10 percent

Description of Bluegrass

Setting
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

Properties and qualities
Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water capacity: High (about 11.6 inches)

Interpretive groups
Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: B

Typical profile

0 to 12 inches: Silt loam
12 to 35 inches: Silty clay loam
35 to 84 inches: Silty clay loam
84 to 96 inches: Clay

Description of Maury

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water capacity: High (about 11.1 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: B

Typical profile

0 to 9 inches: Silt loam
9 to 16 inches: Silty clay loam
16 to 53 inches: Clay
53 to 100 inches: Clay

Minor Components

Faywood

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear

Mcafee

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear

Fine, mixed, active, mesic oxyaquic paleudalfs

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear

Lowell

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear

uMlmC—Maury-Bluegrass silt loams, 6 to 12 percent slopes

Map Unit Setting

Elevation: 540 to 1,060 feet
Mean annual precipitation: 39 to 53 inches
Mean annual air temperature: 46 to 65 degrees F
Frost-free period: 163 to 192 days

Map Unit Composition

Maury and similar soils: 55 percent
Bluegrass and similar soils: 30 percent
Minor components: 15 percent

Description of Maury

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 2 percent
Available water capacity: High (about 11.1 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile

0 to 9 inches: Silt loam
9 to 16 inches: Silty clay loam
16 to 53 inches: Clay
53 to 100 inches: Clay

Description of Bluegrass

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water capacity: High (about 11.6 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile

0 to 12 inches: Silt loam
12 to 35 inches: Silty clay loam
35 to 84 inches: Silty clay loam
84 to 96 inches: Clay

Minor Components

Lowell

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Linear

Faywood

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear

Mcafee

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear

W—Water

Map Unit Setting

Elevation: 480 to 1,360 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 175 to 208 days

Map Unit Composition

Water: 100 percent

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APPENDIX B

KU E.W. BROWN PROPERTY LEGAL DESCRIPTION

Exhibit 4

MERCER COUNTY
D328 PG 7

DEED TAX PAID
$825.00 DATE 6-23-11

GENERAL WARRANTY DEED

THIS DEED is made as of JUNE 23, 2011, between

THURMAN HARDIN ESTATE,
Ritchie McGinnis, Executor
219 South Main Street
Harrodsburg, Kentucky 40330 ("Grantor")

and

KENTUCKY UTILITIES COMPANY,
a Kentucky corporation
ATTN: Real Estate Department
820 West Broadway
Louisville, Kentucky 40202 ("Grantee").

WITNESSETH:

For a total consideration of EIGHT HUNDRED TWENTY-FIVE THOUSAND AND 00/100 DOLLARS ($825,000.00), the receipt of which is hereby acknowledged, and pursuant to the power of sale contained in the Last Will of Thurman Hardin, deceased, Grantor hereby grants and conveys unto the Grantee, in fee simple, with covenant of General Warranty, certain real property and any improvements thereupon located in Mercer County, Kentucky, being more particularly described on EXHIBIT A attached hereto and made a part hereof (the "Property").

Grantor covenants (a) lawful seisin of the Property hereby conveyed, (b) full right and power to convey same, (c) that said Property is free of encumbrances except for (i) liens for real property taxes and assessments due and payable in 2011, and thereafter, which Grantee assumes and agrees to pay and (ii) any rights of the public or Mercer County in the unrecorded public right of way known as Hardin Heights Drive the location of which is shown on that certain physical survey of the Property conducted by Douglas G. Gooch, AGE Engineering Services, Inc., Ky. R.L.S. #3118, dated the 9th day of May, 2011.

This conveyance is made by Ritchie McGinnis in his fiduciary capacity as aforesaid, and he shall not be individually liable for any breach or failure of any of the covenants, warranties and representations made herein. The liability, if any, of Ritchie McGinnis, in his fiduciary capacity aforesaid, in the event of any such breach or failure, shall be limited to the value of the assets in his hands as such fiduciary on the date that he receives written notice thereof.

For purposes of KRS 382.135, Grantor and Grantee, by execution of this Deed, hereby certify that the consideration reflected in this Deed is the full consideration paid for the property.

For purposes of KRS 382.135, the in-care-of address to which the property tax bill for 2011 may be sent to is: Kentucky Utilities Company, 820 West Broadway, Louisville, Kentucky 40202.

return to: Randy Magallon
LG+E and KU Energy
820 W. Broadway
P.O. Box 32020

Exhibit 4

MERCER COUNTY
D328 PG 8

IN WITNESS WHEREOF, Grantor and Grantee, acting by and through their duly authorized representatives, have executed this Deed as of the date first set forth above, but actually on the dates set forth below.

GRANTOR:

THURMAN HARDIN ESTATE

By: _____ Executor
Ritchie McGinnis, Executor

Date Executed: June 23, 2011

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF Boyle)

The foregoing Deed, including the consideration certificate contained therein, was subscribed, sworn to and acknowledged before me on June 23, 2011 by Ritchie McGinnis, known to me or whose identity was proven on the basis of satisfactory identification, who acknowledged the execution of the foregoing as Executor under the Will of Thurman Hardin, on behalf of the Estate.

Mildred L. Johnson
Notary Public

My Commission Expires: 11-4-2014

Exhibit 4

GRANTEE:

KENTUCKY UTILITIES COMPANY,
a Kentucky corporation

By: _____
Kathleen A. Slay

Title: Director Operating Services

Date Executed: June 21, 2011

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF JEFFERSON)

The foregoing Deed, including the consideration certificate contained therein, was subscribed, sworn to and acknowledged before me on June 21st, 2011 by Kathleen A. Slay, known to me or whose identity was proven on the basis of satisfactory identification, who acknowledged the execution of the foregoing as Director Operating Services of KENTUCKY UTILITIES COMPANY, a Kentucky corporation, on behalf of the corporation.

_____
Notary Public

My Commission Expires: June 27, 2013

This instrument prepared by:

_____
Jim Dimas, Esq.
Louisville Gas and Electric Company
820 West Broadway
Louisville, Kentucky 40202

EXHIBIT A

LEGAL DESCRIPTION

BEGINNING at an iron pin set (5/8" x 18" rebar with aluminum cap bearing PLS-3118, as will be typical for all set corner monuments) on the eastern edge of right-of-way of the Norfolk Southern Railway Company (D.B. 104, PG. 271, D.B. 104, PG. 280, D.B. 104, PG. 323) and being the Northwest Corner of Frederick Dempsey (D.B. 160, Pg. 273), said pin having Kentucky State Plane Coordinate System – South Zone Coordinates of N=2166662.24, E=1936109.81 lying in Mercer County, Kentucky, said point also being S05°28'37"W – 3162.76 feet from the Southeast Corner of the Curdsville Bridge Abutment over the Norfolk Southern Railway Company and being the Point of Beginning for this description; Thence leaving the corner of Dempsey and with the eastern edge of right-of-way of the Norfolk Southern Railway Company, along a curve to the left, having a radius of 2010.10 feet, having a chord direction of N28°05'03"E and a chord length of 384.86 feet to a point, N21°36'34"E - 32.90 feet to an iron pin set, N21°36'34"E - 268.84 feet to a point N20°36'32"E - 662.38 feet to an iron pin set, N20°13'14"E - 103.35 feet to a point, N20°04'10"E - 88.92 feet to a point, N18°49'41"E - 110.75 feet to an iron pin set, along a curve to the left having a radius of 2010.10 feet having a chord direction of N01°07'03"E and a chord length of 1208.47 feet to an iron pin set, N17°06'41"W - 86.50 feet to a point, N19°02'37"W - 88.87 feet to a point, N20°01'53"W - 131.46 feet to a point and N21°11'24"W - 238.36 feet to an iron pin set, said pin being on the eastern edge of right-of-way of the Norfolk Southern Railway; Thence leaving said railroad and with a new line to the parent tract, N36°27'44"E - 39.74 – feet to an iron pin set, said pin being the Southwest Corner of Kentucky Utilities Company (D.B. 230, Pg. 201); Thence with the line of Kentucky Utilities Company (D.B. 230, pg. 201), S52°10'06"E – crossing Hardin Heights Drive 226.73 feet to an iron pin set, S48°39'56"E - 32.12 feet to an iron pin found (KYTC), S53°10'45"E - 111.22 feet to an iron pin set, S49°16'35"E - 730.79 feet to an iron pin set, S25°44'27"E - 90.27 feet to an iron pin set, S15°06'22"E - 386.08 feet to an iron pin set, S20°30'30"E - 260.47 feet to an iron pin set, S03°24'21"E - 211.52 feet to an iron pin set, S34°16'49"E - 109.16 feet to an iron pin set, S46°46'12"E - 70.01 feet to an iron pin set, S70°49'20"E - 59.42 feet to an iron pin set, N85°27'56"E - 480.51 feet to an iron pin found with no ID Cap, N84°13'12"E - 468.44 feet to an iron pin set, N02°44'33"W - 5.00 feet to an iron pin set, N84°56'26"E - 361.18 feet to an iron pin set, S67°45'29"E - 47.32 feet to an iron pin set, S52°26'28"E - 527.44 feet to an iron pin set, said pin being on the southern line of Kentucky Utilities Company and being a corner of Hardin Heights, Inc. said pin being on the western line of Hardin Heights, Inc (D.B. 130, Pg. 147, see also Plat of Hardin Heights Camp Sites Plat Slide A-69);; Thence leaving the line of Kentucky Utilities Company and crossing Hardin Heights Drive with the line of Hardin Heights, Inc., S36°08'14"W – 12.01 feet to a mag nail set (1/4" x 2" Mag Nail set as will be typical for all Mag Nails set), said nail being a new corner of the parent tract, S51°06'46"E – 35.00 feet to a Mag Nail Set, S47°51'46"E – 50.00 feet to a Mag nail Set, S42°51'46"E – 50.00 feet to an iron pin set, S37°51'46"E – 50.00 feet to an iron pin set, S32°51'46"E – 50.00 feet to an iron pin set, S27°51'46"E – 50.00 feet to a Mag nail set, S22°51'46"E – 50.00 feet to a Mag nail set, S17°51'46"E – 50.00 feet to an iron pin set, S12°51'46"E – 50.00 feet to an iron pin set, S07°51'46"E – 50.00 feet to an iron pin set, S02°51'46"E – 50.00 feet to an iron pin set,

S02°08'14" W - 50.00 feet to an iron pin set, S04°36'20" W - 338.90 feet to an iron pin found (PLS# 3816), S26°28'46" W - 98.98 feet to an iron pin found (PLS# 3816), S47°50'27" W - 170.00 feet to an iron pin found (PLS# 3816), S60°08'28" W - 172.18 feet to an iron pin found (PLS# 3816), and S23°53'27"E - 39.86 feet to a 1" Iron Pipe Found, said pipe being a corner of the Hardin Heights, Inc (D.B. 130, Pg. 147) and the Southwest corner of Lot 1 of Hardin Heights Camp Estates; Thence leaving the line of Hardin Heights, Inc. (D.B. 130, Pg. 147) and with the line of Lot 1 of Hardin Heights Camp Estates, S23°38'19"E - 204.33 feet to an iron pin set at elevation 760, said pin being N23°38'19"W – 5.11 feet from a found 1" Pipe; Thence leaving Lot 1 of Hardin Heights Camp Estates and with the line of Kentucky Utilities Company (D.B. 104, Pg. 318) and 760 elevation line, S79°31'40" W - 457.41 feet to an iron pin found (PLS# 3816), S58°56'55" W - 83.56 feet to an iron pin found (PLS# 3816), S51°40'58" W - 58.42 feet to an iron pin found (PLS# 3816), S47°50'51" W - 22.05 feet to an iron pin found (PLS# 3816), S45°47'52" W - 138.57 feet to an iron pin found (PLS# 3816), S75°05'26" W - 95.47 feet to an iron pin found (PLS# 3816), S81°32'53" W - 488.43 feet to an iron pin found (PLS# 3816), S88°28'56" W - 209.89 feet to an iron pin found (PLS# 3816), S86°18'39" W - 122.17 feet to an iron pin found (PLS# 3816), and N83°26'18"W - 76.85 feet to an iron pin found (PLS# 3816), said pin being at the 760 Elevation and being a corner of Fredrick Dempsey (D.B. 160, Pg. 273); Thence leaving the 760 Elevation and with the line of Dempsey, N67°55'13"W - 61.50 feet to an iron pin found (PLS# 3816) in the centerline of the Creek, N30°57'02"W - 250.95 feet to an iron pin set, N16°11'02"W - 120.12 feet to an iron pin found (PLS# 3816), N48°20'38"W - 124.02 feet to an iron pin found (PLS# 3816), N38°06'58"W - 98.94 feet to an iron pin found (PLS# 3816) at the base of a fence corner post and S87°38'08" W – with said fence line passing an iron pin found (PLS# 3816) at 1449.80 feet and continuing 2.82 feet for a overall total distance of 1452.62 feet to the POINT OF BEGINNING and containing 152.976 acres by survey.

This description prepared from a physical survey conducted by Douglas G. Gooch, AGE Engineering Services, Inc., Ky. R.L.S. #3118, dated the 9th day of May, 2011.

Being a portion of the property acquired by Thurman Hardin by deed from Charles Hardin, Elizabeth Hardin, Edward Hardin and Juanita Hardin, dated the 3rd day of November, 1960, and of record in Deed Book 146, page 256, and being part of that property acquired by Thurman Hardin et. al. by deed from Edward Hardin and Juanita Hardin dated the 19th day of September 1951 and recorded in Deed Book 127, Pg. 311, both in the Office of the Clerk of Mercer County, Kentucky.

DOCUMENT NO: 145151
RECORDED ON: JUNE 23,2011 10:24:03AM
TOTAL FEES: $23.00
TRANSFER TAX: $825.00
COUNTY CLERK: CHRIS HORN
COUNTY: MERCER COUNTY
DEPUTY CLERK: ROBIN FREEMAN
BOOK D328 PAGES 7 - 11

APPENDIX C

PROPERTY VALUE ASSESSMENT PROPERTY SALES DATA
&
LINEAR REGRESSION OUTPUT

Property Value Assessment Appendix

Exhibit A – Homes Sold 2011-2013

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
2/14/2011	9.50	72,000	1103 Ruffini	Danville	1,839	0.35	0
2/15/2011	6.47	150,000	301 Mcpheeters Dr	Wilmore	1,785		0
2/17/2011	4.12	127,500	107 Country Ln	Lancaster			0
2/18/2011	5.82	265,000	191 Sylvan Way	Lancaster		1.26	0
2/22/2011	5.74	95,000	208 S Walnut Street	Wilmore	1,690	0.18	0
2/22/2011	6.19	90,000	624 Tocher Drive	Wilmore	1,008	0.18	0
2/22/2011	6.21	90,000	705 Wise Drive	Wilmore	1,161	0.22	0
2/23/2011	6.41	115,000	201 Hutchins Drive	Wilmore	1,450	1.00	0
2/23/2011	6.41	115,000	201 Hutchins Dr	Wilmore	1,450	1.00	0
2/25/2011	6.17	135,000	803 Woodspoint Way	Wilmore	2,034	0.17	0
3/1/2011	6.30	140,000	713 Clark Court	Wilmore	1,614	0.18	0
3/4/2011	5.57	139,000	116 Academy Drive	Wilmore	1,368		0
3/8/2011	6.33	125,000	504 Butler Boulevard	Wilmore	1,440		0
3/9/2011	6.74	14,000	109 Brooks Ln	Lancaster			0
3/11/2011	6.37	150,000	523 Talbott Drive	Wilmore	2,200	0.33	0
3/11/2011	9.10	290,000	133 Betsy Ross Ln	Danville	2,503	0.39	0
3/14/2011	7.82	239,000	195 Old Bridge Rd	Danville	2,876	1.13	0
3/17/2011	9.67	90,000	843 Hilltop Rd	Danville	1,160		0
3/18/2011	5.66	234,500	106 Sylvan Way	Lancaster		1.01	0
3/18/2011	8.99	230,500	100 Independence Ct	Danville	2,426	0.57	0
3/23/2011	1.82	395,535	866 Donmar Dr.	Lancaster			1
3/24/2011	7.79	172,000	174 Governors Xing	Lancaster		1.06	0
3/25/2011	5.70	175,000	319 Angela Way	Lancaster		1.27	0
3/28/2011	2.01	36,200	317 Bowmans Bottom Rd.	Lancaster		1.65	0
3/29/2011	6.25	45,000	120 Hinkle Street	Wilmore	1,350		0
3/31/2011	6.02	132,000	46 Filly Way	Lancaster		1.03	0
3/31/2011	6.06	85,000	511 Margaret Drive	Wilmore	1,144		0
4/4/2011	7.50	261,500	235 Drake Lane	Wilmore	1,746	5.00	0
4/6/2011	4.04	90,500	3215 Kennedy Bridge Rd	Lancaster	1,344	1.04	0
4/7/2011	4.08	217,500	1025 Handys Bend Rd	Wilmore		6.00	0
4/7/2011	4.08	217,500	1025 Handys Bend Road	Wilmore		6.00	0
4/7/2011	7.75	139,000	225 Spears Ln	Danville	2,030	0.46	0
4/8/2011	9.19	129,900	401 Springhill Rd	Danville	1,705	0.30	0
4/12/2011	2.76	300,000	3475 High Bridge Road	Wilmore	3,962		0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
4/19/2011	9.88	77,000	626 Apache	Danville	1,566	0.44	0
4/21/2011	6.06	80,000	705 Barefoot Drive	Wilmore	1,050		0
5/2/2011	6.22	100,100	519 N Lexington Avenue	Wilmore	1,968		0
5/6/2011	2.17	120,000	4485 High Bridge Road	Wilmore	1,118	1.00	0
5/6/2011	2.17	120,000	4475 High Bridge Rd	Wilmore	900		0
5/6/2011	2.17	120,000	4475 High Bridge Road	Wilmore	900		0
5/10/2011	5.69	110,000	310 Walters Lane	Wilmore	1,400	0.28	0
5/12/2011	6.09	159,900	136 Settlement Dr	Lancaster			0
5/12/2011	9.50	46,500	1811 Goggin Rd	Danville	3,470	7.45	0
5/17/2011	5.77	86,500	100 Linden Street	Wilmore	1,218	0.18	0
5/20/2011	9.75	105,000	606 Seminole Trail	Danville	1,512	0.26	0
5/26/2011	6.04	100,000	110 Berry Patch Drive	Wilmore	1,161	0.13	0
5/26/2011	6.66	155,000	131 Kay Ave	Lancaster			0
5/26/2011	6.91	252,500	119 Trotter Way	Wilmore	2,275	5.00	0
5/26/2011	9.08	145,000	1301 Shakertown Rd	Danville	1,904	0.48	0
5/27/2011	6.57	108,750	118 Indian Springs Trl	Lancaster			0
5/27/2011	7.29	218,000	1013 Bicknell Lane	Wilmore	1,516	5.00	0
5/31/2011	9.46	125,000	113 Winning Colors	Danville	1,340		0
6/1/2011	8.31	460,000	5411 Lexington Rd	Danville	3,867	6.73	1
6/3/2011	5.20	70,000	1288 Carry Nation Rd	Lancaster			1
6/8/2011	9.60	63,800	1034 Locust Ln	Lancaster	1,568		0
6/17/2011	9.00	205,000	408 Valleybrook Dr	Danville	3,427	0.41	0
6/20/2011	6.23	124,500	520 N Lexington Avenue	Wilmore	2,024		0
6/20/2011	8.98	171,500	132 Ridge View Rd	Danville	1,828	0.31	0
6/21/2011	8.24	43,000	10 Wells Landing Rd	Danville	896	1.19	0
6/23/2011	6.71	278,000	2535 Waterworks Rd	Danville	2,200	0.58	1
6/24/2011	5.89	82,500	704 E Main Street	Wilmore	2,199	1.00	0
6/29/2011	8.87	100,000	2045 Old Lexington Rd	Danville	2,184	0.98	0
6/30/2011	5.87	73,000	102 Wood Street	Wilmore	800		0
6/30/2011	6.18	155,000	420 Akers Drive	Wilmore	2,095	0.41	0
6/30/2011	7.01	359,000	105 Trotter Way	Wilmore	3,491	5.00	0
6/30/2011	9.51	135,000	144 Bold Venture	Danville	1,466	0.34	0
7/6/2011	6.30	90,000	1000 Wise Drive	Wilmore	1,056	0.17	0
7/8/2011	9.46	116,000	236 Hartland Dr	Danville	1,398	0.48	0
7/13/2011	6.51	125,000	404 Corbitt Drive	Wilmore	1,431	0.43	0
7/13/2011	9.46	120,000	1451 Fork Church Rd	Lancaster			0
7/13/2011	9.73	43,500	517 Seminole Trail	Danville	1,307	0.26	0
7/15/2011	6.99	171,000	2342 Jessamine Station	Wilmore	2,642	0.46	0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
7/15/2011	7.02	45,000	101 Davistown Rd	Lancaster		1.50	0
7/15/2011	7.64	130,000	1396 Taylor Rd	Danville	1,729	0.57	1
7/15/2011	7.78	239,000	1164 Taylor Rd	Danville	2,720	0.65	1
7/15/2011	8.84	211,000	105 Ridge View Rd	Danville	2,363	0.33	0
7/15/2011	9.76	27,600	1032 Gayhart Ln	Nicholasville	862	1.00	0
7/19/2011	5.83	71,000	106 S Walnut Street	Wilmore	1,633	0.14	0
7/19/2011	7.66	306,000	938 Spears Ln	Danville	4,416	5.00	0
7/20/2011	9.14	194,900	425 Meadowbrook Dr	Danville	3,326	0.40	0
7/25/2011	8.91	159,500	415 Coldstream Dr	Danville	2,320	0.34	0
7/25/2011	9.20	270,000	421 Springhill Rd	Danville	4,136	1.06	0
7/27/2011	6.22	97,500	106 Asbury Drive	Wilmore	1,178	0.24	0
7/28/2011	6.06	84,000	307 Wise Drive	Wilmore	1,018	0.16	0
7/29/2011	7.40	174,900	15 Dorton Dr	Lancaster			0
7/29/2011	9.04	204,000	117 Betsy Ross Ln	Danville	1,957	0.34	0
7/29/2011	9.63	175,000	517 Graham Rd	Danville	1,932	0.36	0
8/8/2011	7.79	267,000	188 Old Bridge Rd	Danville	2,700	0.74	1
8/8/2011	9.88	88,000	708 N Maple Ave	Danville	1,266		0
8/9/2011	6.00	108,000	621 Barefoot Drive	Wilmore	1,214	0.17	0
8/10/2011	6.49	172,500	801 Corbitt Drive	Wilmore	2,151	0.39	0
8/11/2011	6.02	210,000	1315 Crenshaw Ln	Nicholasville	1,966	6.00	0
8/11/2011	6.20	18,500	503 Kinlaw Drive	Wilmore	2,144		0
8/12/2011	7.02	151,000	999 Fisher Ford Rd	Lancaster		1.01	0
8/12/2011	7.35	137,500	120 Marie Dr	Danville	2,490	0.79	0
8/15/2011	6.28	130,000	202 E Joann Drive	Wilmore	1,343		0
8/15/2011	6.34	150,000	167 Seamands Drive	Wilmore	1,745	0.25	0
8/15/2011	9.00	100,000	2033 Cardinal	Danville	1,866	0.55	0
8/17/2011	9.07	165,000	124 Betsy Ross Ln	Danville	2,385	0.31	0
8/18/2011	10.06	155,000	1233 Kemper Ln	Lancaster		1.05	0
8/19/2011	5.93	134,000	107 River Run Dr	Lancaster		1.00	0
8/19/2011	6.56	119,000	130 Indian Springs Trl	Lancaster		1.02	0
8/24/2011	9.57	272,000	622 Grabruck St.	Danville	2,976	0.53	0
8/25/2011	5.85	39,900	504 1/2 E Main Street	Wilmore	1,514	1.00	0
8/26/2011	6.21	172,000	507 Kinlaw Drive	Wilmore	2,550	0.38	0
8/26/2011	6.23	181,000	310 Butler Boulevard	Wilmore	2,108	0.25	0
8/26/2011	7.09	165,000	1900 Danville Rd	Harrodsburg	2,300	0.82	0
8/26/2011	7.89	138,000	820 Cleo Ave	Lancaster		1.84	0
8/29/2011	7.47	135,000	3095 Shakertown Rd	Danville	1,750	2.00	0
8/29/2011	9.89	55,000	625 Old Shakertown Rd	Danville	1,389	0.23	0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
8/30/2011	5.49	105,000	105 Lowry Lane	Wilmore	2,000	0.32	0
8/30/2011	5.66	160,000	101 Academy Drive	Wilmore	1,734		0
8/31/2011	2.30	30,010	145 Conn Drive	Wilmore	1,714	6.00	0
8/31/2011	9.76	140,000	625 Seminole Trail	Danville	1,764	0.38	0
9/1/2011	7.10	74,900	854 Fuzzy Duck Rd	Lancaster		16.48	0
9/6/2011	6.23	187,500	109 Callis Circle	Wilmore	2,148		0
9/12/2011	7.94	49,500	1713 Mount Hebron Rd	Lancaster		8.80	0
9/12/2011	9.05	119,792	83 Chandler Way	Lancaster			0
9/12/2011	9.83	69,000	852 Crosshill Rd	Danville	1,822		0
9/15/2011	9.59	117,750	176 Candlewood Dr	Danville	1,384	0.29	0
9/19/2011	7.53	250,250	149 Annadale Dr	Lancaster		3.86	0
9/23/2011	5.62	68,000	121 Palisade Hts Ext	Nicholasville	1,326	2.00	0
9/28/2011	6.19	40,000	103 W Morrison Street	Wilmore	1,128	0.17	0
9/28/2011	6.24	50,100	112 Hinkle Street	Wilmore	1,100	0.20	0
9/29/2011	5.59	82,800	209 Thacker Drive	Wilmore	1,216	0.34	0
9/30/2011	9.55	297,500	620 Grabruck St	Danville	3,369	0.55	0
10/4/2011	6.69	180,000	454 Sutton Ln	Lancaster			0
10/5/2011	6.49	335,000	805 Corbitt Drive	Wilmore	4,191	0.39	0
10/6/2011	9.52	45,000	2245 Clifton Rd	Danville		1.22	1
10/10/2011	5.56	130,000	152 Lowry Lane	Wilmore	1,370		0
10/11/2011	9.38	237,500	399 Steindorf Ln	Lancaster		33.88	0
10/13/2011	6.72	58,000	2080 Wells Landing Rd	Danville		0.18	1
10/13/2011	6.72	58,000	2080 Wells Landing Rd	Danville		0.18	1
10/13/2011	9.68	67,500	618 Shawnee Rd	Danville	1,500	0.24	0
10/14/2011	9.62	74,250	601 Pontiac Ave	Danville	1,328	0.28	0
10/14/2011	9.92	148,500	302 Parkview Dr	Danville	1,622	0.47	0
10/17/2011	5.83	36,250	103 N Maple	Wilmore	2,304		0
10/21/2011	5.25	155,000	64 S Homestead Ln	Lancaster		1.13	1
11/2/2011	6.58	1,359,764	3860 Shakertown Rd	Danville	1,104	245.31	0
11/3/2011	9.40	282,500	1150 Stirling Dr	Danville	4,007	0.94	0
11/4/2011	5.60	173,675	112 Academy Drive	Wilmore	1,946		0
11/7/2011	2.03	210,000	851 Hamilton Springs Rd.	Lancaster			1
11/8/2011	6.04	93,000	212 Winding Way	Wilmore	1,015	0.16	0
11/11/2011	6.06	76,000	248 Winding Way	Wilmore	1,041		0
11/11/2011	9.84	116,500	855 Crosshill Rd	Danville	2,160		0
11/14/2011	6.22	149,000	113 Pleasantview St.	Wilmore	2,730		0
11/15/2011	6.19	191,467	144 Combs Ln	Wilmore			0
11/15/2011	6.47	123,000	107 Woodbreeze Ln	Wilmore	1,496	0.26	0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
11/15/2011	9.70	72,250	815 Alton Rd	Danville	1,431		0
11/18/2011	6.30	67,100	105 Creekwood Ln	Wilmore	1,161		0
11/18/2011	9.67	55,320	633 Shawnee Rd	Danville	1,402	0.28	0
11/22/2011	9.30	81,000	1101 Elm St	Danville	1,912	0.48	0
11/22/2011	9.66	153,500	503 Ohara Dr	Danville	1,870	0.50	0
11/30/2011	5.64	150,000	104 Academy Dr	Wilmore	1,682		0
12/1/2011	5.89	72,500	708 E Main St	Wilmore	1,912	2.00	0
12/5/2011	8.96	93,000	2061 Cardinal	Danville	1,735	0.44	0
12/5/2011	9.71	220,000	1395 Lannock Dr	Danville	3,383	0.52	0
12/7/2011	2.07	70,000	1225 Dix Dr	Wilmore	1,008		0
12/7/2011	2.07	70,000	1225 Dix Dr	Wilmore	1,008		0
12/9/2011	6.32	18,000	11208 Lexington Rd	Lancaster			0
12/9/2011	9.09	128,000	554 Springhill Rd	Danville	1,939	0.44	0
12/9/2011	9.73	79,000	645 Seminole	Danville	2,225	0.38	0
12/14/2011	7.86	310,000	309 Briarcliff Ln	Danville	2,653	1.06	1
12/15/2011	6.01	100,000	406 Kenyon ave	Wilmore	2,200	0.21	0
12/16/2011	9.19	130,000	2385 Goggin Ln	Danville	1,875	0.51	0
12/21/2011	4.75	193,500	232 Clay Ave	Lancaster			0
12/21/2011	9.70	110,000	1299 Lannock Dr	Danville			0
12/22/2011	8.65	105,050	319 Streamland	Danville	2,400	0.49	0
12/29/2011	7.81	140,000	1136 Taylor Rd	Danville	1,714	0.57	1
1/4/2012	6.20	360,000	701 Brasher St	Wilmore			0
1/6/2012	3.35	37,000	32 Pollys Bend Rd	Lancaster			0
1/10/2012	6.32	320,000	560 Pekin Pike	Wilmore	4,154	6.17	0
1/13/2012	5.65	310,000	202 Palisades Point	Lancaster		1.95	0
1/19/2012	9.67	87,000	846 Hilltop Rd	Danville	1,443		0
1/23/2012	9.67	101,500	630 Shawnee Rd	Danville	1,763	0.28	0
1/31/2012	9.68	87,000	1000 Nokomis St	Danville	2,000	0.36	0
1/31/2012	9.77	38,304	726 Alton Rd	Danville	1,280		0
2/3/2012	5.93	5,200	488 Tanyard Branch Rd	Lancaster			0
2/13/2012	6.19	119,000	107 E Morrison St	Wilmore	2,160		0
2/15/2012	9.11	58,000	249 Delbert Ball Rd	Lancaster		8.62	0
2/16/2012	9.69	185,000	1490 Lannock Dr	Danville	2,544	0.42	0
2/17/2012	8.52	142,500	4613 Chenault Bridge Rd	Danville	1,776	2.63	1
2/17/2012	8.89	188,000	510 Silverbrook Dr	Danville	3,000	0.41	0
2/21/2012	9.08	172,000	558 Springhill Rd	Danville	2,447	0.45	0
2/28/2012	9.23	116,000	1105 Poplar St	Danville	1,785	0.42	0
2/29/2012	7.89	235,000	103 Old Bridge Rd	Danville	3,012		1

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
3/2/2012	5.58	195,000	123 Pickett Dr	Wilmore	1,771		0
3/2/2012	5.92	169,000	115 Angela Way	Lancaster		1.10	0
3/6/2012	6.09	274,900	149 River Run Dr	Lancaster		1.56	0
3/22/2012	5.38	90,000	772 Carry Nation Rd	Lancaster			1
4/25/2012	6.43	125,000	106 Parkwood Dr	Wilmore	1,382	0.42	0
4/26/2012	5.73	137,500	207 S Maple St	Wilmore	3,318	2.00	0
4/26/2012	5.81	252,400	185 Sylvan Way	Lancaster		1.34	0
5/8/2012	6.06	116,000	244 Winding Way	Wilmore	1,392	0.20	0
5/15/2012	9.04	135,000	333 Brookside Dr	Danville	1,968	0.54	0
5/17/2012	8.82	157,000	508 Stoneybrook Dr	Danville	2,440	0.98	0
5/23/2012	6.40	90,000	7440 Old Danville Rd	Nicholasville	2,048	3.00	0
5/23/2012	6.87	180,000	101 Red Robin Way	Wilmore	1,847		0
5/29/2012	6.20	165,000	505 Kinlaw Dr	Wilmore	2,176		0
6/5/2012	5.55	190,000	122 Academy Dr	Wilmore	1,915		0
6/6/2012	6.52	165,000	62 Christopher Ln	Nicholasville	1,758	4.00	0
6/11/2012	6.53	131,000	105 Woodspointe Way	Wilmore	1,672	0.27	0
6/22/2012	6.20	185,900	501 Kinlaw Dr	Wilmore	2,085		0
6/25/2012	6.22	196,000	103 Callis Cir	Wilmore	2,091	0.43	0
6/28/2012	6.20	146,000	703 Woodspointe Way	Wilmore	1,164		0
6/29/2012	5.60	62,784	221 Thacker Dr	Wilmore	1,161		0
7/6/2012	6.17	150,000	104 Seamands Dr	Wilmore	1,446		0
7/19/2012	5.77	115,000	102 Phillips Ct	Wilmore	1,064	0.22	0
7/20/2012	6.34	119,250	410 Woodspointe Way	Wilmore	1,296	0.16	0
7/23/2012	5.97	116,326	613 Barefoot Dr	Wilmore	1,944	0.17	0
8/20/2012	6.54	70,000	148 Indian Springs Trl	Lancaster	1,144		0
8/24/2012	6.31	187,000	152 Seamands Dr	Wilmore	1,842	0.26	0
10/3/2012	5.57	115,000	101 Pickett Dr	Wilmore	1,400	0.21	0
10/8/2012	6.49	94,900	206 Woodspointe Way	Wilmore	1,550	0.17	0
10/10/2012	6.14	94,000	609 Gwendolyn Ct	Wilmore	1,008	0.16	0
10/12/2012	5.53	212,000	220 Charles Pl	Wilmore	1,850		0
10/26/2012	3.63	160,000	476 Highway 33 S	Harrodsburg	1,344	1.08	0
10/26/2012	6.87	215,000	111 Mockingbird Ln	Wilmore	2,014	1.00	0
12/11/2012	6.81	200,000	281 Shannon Oaks Dr	Harrodsburg	2,488	1.24	0
12/17/2012	6.03	98,000	506 Bohicket Rd	Wilmore	1,368		0
12/18/2012	5.68	92,542	1400 Corman Ln	Nicholasville	1,852	9.00	0
12/21/2012	6.04	135,500	103 Berry Patch Dr	Wilmore	1,311	0.17	0
1/2/2013	2.17	100,000	207 Wildwood Rd	Harrodsburg	1,189	0.20	1
1/17/2013	6.07	106,000	253 Winding Way	Wilmore	1,286	0.19	0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
1/21/2013	3.05	187,900	1670 High Bridge Rd	Lancaster	1,752	1.00	0
2/4/2013	6.03	96,350	507 Bohicket Rd	Wilmore	1,161		0
2/4/2013	6.12	390,000	113 Anderson Way	Wilmore	5,326	0.29	0
2/22/2013	6.34	233,000	164 Seamands Dr	Wilmore	2,438	0.27	0
3/13/2013	7.42	253,000	117 Greystone Dr	Nicholasville	2,580	1.00	0
3/15/2013	6.15	159,000	415 Akers Dr	Wilmore	1,984	0.56	0
3/20/2013	6.36	165,000	518 Talbott Dr	Wilmore	2,010	0.33	0
3/29/2013	9.08	168,000	330 Brookside Dr	Danville	3,693	0.59	0
4/5/2013	6.24	340,000	116 Callis Cir	Wilmore	5,000	0.15	0
4/15/2013	6.23	262,000	609 Haynes Ct	Wilmore	3,050	0.16	0
4/16/2013	1.75	67,500	3740 High Bridge Rd	Lancaster	2,400	6.00	0
4/17/2013	5.36	224,000	116 Leatherwood Ln	Nicholasville	2,280	1.00	0
4/19/2013	5.03	195,000	830 High Bridge Rd	Wilmore	1,500	5.00	0
4/25/2013	5.51	126,000	119 Lowry Ln	Wilmore	1,300		0
4/26/2013	5.38	205,000	106 Leatherwood Ln	Nicholasville		1.00	0
4/26/2013	6.30	190,000	709 Clark Ct	Wilmore	2,040	0.09	0
4/30/2013	6.24	305,000	114 Callis Cir	Wilmore	3,000		0
5/2/2013	7.60	64,900	1045 Durham Ln	Nicholasville	2,357	7.00	0
5/6/2013	8.92	263,300	950 Jackson Pike	Harrodsburg	3,191	10.00	0
5/9/2013	6.42	150,000	204 Hager Ct	Wilmore	1,508		0
5/13/2013	6.23	221,000	107 Callis Cir	Wilmore	2,450	0.06	0
5/23/2013	6.55	124,000	142 Indian Springs Trl	Lancaster	1,721		0
6/3/2013	0.91	40,000	160 Dix Dam Rd	Harrodsburg	1,280	5.00	0
6/5/2013	5.88	163,500	131 River Run Dr	Lancaster	1,845	1.00	0
6/7/2013	6.31	187,900	705 Clark Ct	Wilmore	1,876	0.49	0
6/14/2013	5.54	130,000	141 Lowry Ln	Wilmore	1,737	0.33	0
6/17/2013	6.07	64,000	713 Barefoot Dr	Wilmore	968	0.18	0
6/25/2013	5.23	110,000	1006 Carry Nation Rd	Lancaster			1
6/27/2013	2.99	89,000	239 Bigger Staff Ln	Lancaster			1
6/27/2013	5.49	208,500	106 Lowry Ln	Wilmore	3,075	1.00	0
6/27/2013	6.12	120,000	619 Bohicket Rd	Wilmore	1,340		0
6/28/2013	6.03	134,900	221 Winding Way	Wilmore	1,080		0
6/28/2013	6.17	101,900	401 Winding Way	Wilmore	1,125	0.17	0
7/1/2013	6.44	122,000	118 Brookwood Ln	Wilmore	1,432	0.21	0
7/3/2013	6.21	171,000	511 N Lexington Ave	Wilmore	2,187	0.33	0
7/8/2013	5.53	209,920	224 Charles Pl	Wilmore	1,734		0
7/12/2013	6.26	111,000	112 Ashbury Dr	Wilmore	1,751	0.24	0
7/18/2013	9.28	58,375	293 Fork Church Rd	Lancaster	2,013		0

Date Sold	Straight line distance from site (miles)	Nominal Sales Price ($)	Street Address	City	House size (sqft)	Lot size (acres)	Lakefront (1=yes)
8/16/2013	9.31	81,000	1994 Bluegill Road	Danville	1,100		0
8/28/2013	7.60	80,000	480 Ashley Dr	Harrodsburg	1,040	0.25	0
8/30/2013	6.12	142,000	169 Tanyard Branch Rd	Lancaster	1,700	1.00	0
9/3/2013	5.78	270,000	166 Sylvan Way	Lancaster	4,540	1.52	0
9/6/2013	6.05	146,500	285 ColtsRun	Lancaster	1,500	1.00	0
9/12/2013	1.62	249,000	443 Ronclar Dr.	Lancaster	2,232	0.88	1
9/20/2013	6.50	99,000	288 Sycamore Dr	Lancaster	1,681	1.00	0
9/25/2013	6.94	74,000	435 College Manor	Harrodsburg	1,008	0.19	0
11/21/2013	5.21	159,000	178 Lakeview Pt.	Harrodsburg	1,089		1
12/2/2013	6.09	53,300	733 Barefoot Dr	Wilmore	1,430		0
12/2/2013	6.13	130,000	203 Bohicket Rd	Wilmore	1,174		0
12/18/2013	4.58	150,000	1028 Hancock Cir. Apt 40	Harrodsburg	1,152		1
12/26/2013	8.99	235,000	138 Ridge View Rd	Danville	2,864	0.78	0
12/27/2013	6.17	178,500	103 Seamands Dr	Wilmore	1,868		0
12/27/2013	6.35	108,590	405 Woodspointe Way	Wilmore	1,587		0

Exhibit B – Linear Regression Output, per square foot analysis

Dependent Variable: inflation adjusted price per square foot
Number of Observations: 227
R-squared = 0.0064

Independent Variables	Coefficient (Robust Standard Error)
Straight-line distance (miles)	-3.65* (1.33)
Constant	110.57 (12.85)

*indicates statistically significant at 5% level

Exhibit C – Linear Regression Output, per square foot analysis expanded

Dependent Variable: inflation adjusted price per square foot Number of Observations: 164 R-squared = 0.9315	
Independent Variables	**Coefficient** **(Robust Standard Error)**
Straight-line distance (miles)	-0.48 (1.78)
Sold in 2012	2.09 (5.57)
Sold in 2013	-0.03 (5.80)
Lakefront property	24.62* (6.50)
Property size (acres)	5.03* (0.05)
Constant	74.48 (14.28)
Sold in 2012 and *Sold in 2013* are binary variables (0, 1) indicating the year in which the home was sold. *Sold in 2011* is the omitted category. *indicates statistically significant at 5% level	

Exhibit D – Linear Regression Output, per acre analysis

Dependent Variable: inflation adjusted price per acre Number of Observations: 192 R-squared = 0.0004	
Independent Variables	**Coefficient** **(Robust Standard Error)**
Straight-line distance (miles)	-4660.1 (11094.95)
Constant	394920.1 (98128.8)

Exhibit E – Linear Regression Output, per acre analysis

Dependent Variable: inflation adjusted price per acre
Number of Observations: 192
R-squared = 0.0658

Independent Variables	Coefficient (Robust Standard Error)
Straight-line distance (miles)	13950.6 (10959.7)
Sold in 2012	34246.9 (47512.5)
Sold in 2013	279072.5* (134797.6)
Lakefront property	-66279.0 (49407.3)
Constant	208557.6 (88043.0)

Sold in 2012 and *Sold in 2013* are binary variables (0, 1) indicating the year in which the home was sold. *Sold in 2011* is the omitted category.
*indicates statistically significant at 5% level